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THE CHARACTERISTICS OF CREATIVE STUDENTS: PERCEPTIONS OF CALIFORNIA SCHOOL PRINCIPALS

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THE CHARACTERISTICS OF CREATIVE STUDENTS: PERCEPTIONS OF CALIFORNIA SCHOOL PRINCIPALS

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THE CHARACTERISTICS OF CREATIVE STUDENTS: PERCEPTIONS OF CALIFORNIA SCHOOL PRINCIPALS

Abstract of the Dissertation

Purpose: The purpose of this study was to determine the attitudes of California school principals toward the characteristics of creative students and compare their responses with experts in the field.

Procedure: Two hundred fifteen elementary principals and 45 high school principals comprised the 260 principals in the sample. A stratified random sample of principals was surveyed by mail to determine their perceptions of the characteristics of creative students. Information was gathered from each principal on the Ideal Child Checklist. Independent variables were district type, average daily attendance, amount of course work taken in gifted education, age, experience as an administrator, program offerings for creative students, and gender. One-way Analysis of Variance was used to test for rating differences, and the Spearman rho and Pearson correlation coefficient were used to test for relationships.

Findings and Conclusions: For the characteristics on the checklist, a positive correlation of .54 was found between the rankings of principals and experts. Statistically significant differences between principals and experts, however, were detected for many items on the checklist. Few statistically significant differences were found between principals' responses on the independent variables. However, statistically significant differences were indicated in the responses of male and female principals for 23 of the 62 items.

Recommendations: (1) Conduct further studies to explore the perceptions of principals of the other five dimensions of giftedness identified by the federal government. (2) Conduct study to determine if there is a consistency between actual school operations and principals' expressed attitudes on the survey. (3) Conduct study of the nature of course work in gifted education to assess suitability for school principals. (4) A conflict between traits to encourage or discourage for creative students and smooth school operation was identified. Conduct study of alternative learning environments. (5) Conduct in-service programs to explore the male and female spheres of creativity, since men and women reported to reinforce different characteristics of creativity.

LIST OF TABLES

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CHAPTER 1

Introduction

Creative individuals appear in all cultures, but society's identification and treatment of them varies markedly. In ancient Greece, Plato argued that the commonwealth should cultivate the "noblest natures". Through careful nurturing from earliest childhood, the "noblest natures" were directed toward the service of the commonwealth.[1] In Renaissance Italy, Boccaccio praised the "all-sided man" who mastered all the elements of the culture of the age.[2]

In the nineteenth century, Galton contributed to society's definition of the gifted by developing a measurement scale of intelligence. Binet further extended the definition of intelligence through creating the Binet Simon Intelligence Test.[3]

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[1] Francis MacDonald Cornford, trans., The Republic of Plato, by Plato (New York: Oxford University Press, 1967), p. 233.

[2] Jacob Burckhardt, The Civilization of the Renaissance in Italy (New York: Harper & Row, 1958), I, p. 147.

[3] Patricia A. Alexander and Joseph A. Muia, Gifted Education: A Comprehensive Roadmap (Rockville, Maryland: Aspen Systems Corporation, 1982), pp. 1-5.

Terman's studies of gifted individuals in the 1920s introduced a behavioral dimension to the definition of giftedness. His work concluded that the gifted are highly neglected in education. His efforts spurred the public schools to be more sensitive to the special characteristics of gifted students.

Another wave of interest in gifted education occurred during World War II and the Cold War era. Considerations of national security demanded that human resources be used to the best advantage.[4]

The scope of gifted education also began to broaden.[5] Robert Havighurst, writing in Education for the Gifted, presented a more inclusive definition of gifted:

> The talented or gifted child is one who shows consistently remarkable performance in any worthwhile line of endeavor. Thus we shall include not only the intellectually gifted but also those who show promise in music, the graphic arts, creative writing, dramatics, mechanical skills, and social leadership.[6]

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[4] Educational Policies Commission, Education of the Gifted (Washington, D.C.: National Education Association, 1950), p. 21.

[5] Clifford Dale Curl, "Perceptions of the Term Giftedness of Four Sample Groups in Kansas," Diss. University of Kansas, 1979, p. 12.

[6] Walter B. Barbe, ed., Psychology and the Education of the Gifted: Selected Readings (New York: Appleton-Century-Crofts, 1965), p. 36.

Surveying changes since 1954, Torrance suggested that the most significant development in the education of gifted children is the expansion of the concept of giftedness.[7]

The Federal government embraced the broader definition of gifted during the 1970s. Gifted and talented children were defined as those identified by virtue of their outstanding abilities and high performance. These are children who require differentiated educational programs in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

(1) General intellectual ability
(2) Specific academic aptitude
(3) Creative or productive thinking
(4) Leadership ability
(5) Visual and performing arts
(6) Psychomotor ability

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[7] E. Paul Torrance and William F. White, eds., Issues and Advances in Educational Psychology (Itasca: F.E. Peacock, Publishers, Inc., 1969), p. 174.

At the Federal level, support for gifted education increased. The Congressional mandate of 1970 added provisions for gifted and talented children to the Elementary and Secondary Education Amendments.[8] The creation of the Office of Gifted and Talented in the Federal Department of Education in 1972, contributed further to increased interest and growth in gifted education. With this new interest, educators began to look more closely at all aspects of gifted education.

The most recent legislation in California regarding the gifted was enacted in 1980. California's Gifted and Talented Education (G.A.T.E.) Program, established by Assembly Bill 1040, expanded the definition of giftedness even further. Children could be identified in the areas of achievement, specific academic ability, creativity, leadership, or visual and performing arts in addition to general intelligence.[9] The law also allowed school districts latitude to select categories for service and to establish standards for entry.

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[8] Harry J. Morgan, Carolyn G. Tennant, and Milton J. Gold, Elementary and Secondary Level Programs for the Gifted and Talented (New York: Teachers College Press, 1980), p. 2.

[9] California, Statutes of 1979, Sec. 52202, 2654.

Perhaps in response to environmental demands for increased ingenuity, educators since 1980 have broadened the definition of giftedness even further. Howard Gardner suggested expanding and reformulating views of human intellect. The idea of multiple intelligences, he proposed, was a more comprehensive approach to intelligence.[10]

Grappling with the enlarged definition of giftedness, educators have sought to identify relationships and distinctions among the various categories. John Gowan argued that, "Neither the area of the gifted child nor of creativity can well be understood if they are thought of as separate and independent disciplines."[11]

Numerous educators have addressed the question of overlap among these six areas. Francoys Gagné addressed the overlap between giftedness and talent. He defined talent to be performance which is distinctly above average in one or more fields of human endeavor and giftedness to be

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[10] Howard Gardner, Frames of Mind: The Theory of Multiple Intelligences (New York: Basic Books, Inc., 1983), p. 9.

[11] John C. Gowan, "Creativity and Gifted Child Movement," The Journal of Creative Behavior, 12, No. 1 (1978), 1.

competence which is distinctly above the average in one or more domains of ability.[12] From his studies, he suggested a direct relationship between giftedness and talent.

Anne Sokolow Levine addressed the relationship between creativity and intelligence. Levine defined intelligence as the capacity to acquire and apply knowledge, the faculty of thought and reason. Creativity was defined as the ability to originate or to produce things characterized by originality, expressiveness, and imagination.[13] From her study of three-year-old children, she found a positive correlation between intelligence and creativity.

Eleanor G. Hall focused on the relationship among intelligence, creativity and achievement. Her study involved fifty-seven gifted students between eighth and twelfth grades. In her longitudinal study, she found significant relationships between achievement scores and

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[12] Francoys Gagné, "Giftedness and Talent: Reexamining a Reexamination of the Definitions," Gifted Child Quarterly, 29, No. 3 (1985), 108.

[13] Anne Sokolow Levine, "Creativity and Intelligence in Three-Year-Old Children," Diss. University of California, 1983, p. 5.

creativity scores.[14] Creativity scores in twelfth grade correlated significantly with both achievement and intelligence in eighth grade and tenth grade.[15]

Diessner also researched the relation between creativity and intelligence. Participants in his study were given the Wechsler Adult Intelligence Scale-Revised (WAIS-R) and the Khatena-Torrance Creative Perception Inventory (KTCPI). He found a high correlation between the creativity scores and the full scale intelligence scores.[16]

Other studies also suggest a relationship between intelligence and creativity. In a 1969 study of one thousand gifted and talented students, George Welsh found overlap of high scores in both intelligence and creativity as measured by the Terman Concept Master Test (CMT) and the

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[14] Eleanor G. Hall, "Longitudinal Measures of Creativity and Achievement for Gifted IQ Groups," The Creative Child and Adult Quarterly, X, No. 1 (1985), 7.

[15] Ibid., 14.

[16] Rhett Diessner, "Correlation of the Khatena-Torrance Creative Perception Inventory and the Wechsler Adult Intelligence Scale-Revised," The Creative Child and Adult Quarterly, IX, No. 1 (1984), 30.

Welsh Figure Preference Test (WFPT).[17] In another study, Torrance reported that thirty percent of students identified as gifted were also identified as creative.[18]

Although the 1962 study of Getzels and Jackson questioned the overlap between intelligence and creativity, their data have been reanalyzed. Marsh concluded that it is a mistake to regard creativity as entirely independent of the general factor of intelligence.[19] In fact, Yamamoto found a correlation of .88 between the Torrance Test of Creativity and the Lorge Thorndike in his large study of fifth grade students.[20]

To address each of the categories established as gifted by state and federal governments, an understanding of each of the categories is needed. Although understanding of each category is necessary, this study will be limited to an exploration of the creative category.

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[17] George S. Welsh, "Personality Correlates of Intelligence and Creativity in Gifted Adolescents," in The Gifted and the Creative, A Fifty-Year Perspective, eds. Julian C. Stanley, William C. George, and Cecilia H. Solano (Baltimore: The Johns Hopkins University Press, 1977), p. 198.

[18] Barbara Clark, Growing Up Gifted (Columbus: Charles Merrill Publishing Company, 1979), p. 247.

[19] Abraham J. Tannenbaum, Gifted Children: Psychological and Educational Perspectives (New York: MacMillan Publishing Co., Inc., 1983), p. 286.

[20] Ibid., p. 292.

Statement of Problem

The adjustment of creative students to society may be greatly influenced by the degree of understanding and support they receive during their school years. If the principal understands the characteristics of creative children, that is an important first step to facilitate the development of the full potential of students. The recognition of learner needs constitutes one of the most fundamental steps in curriculum planning. The sensitivity to student characteristics may be one element that dictates changes in classroom structure, teaching methods, and instructional materials.[21] Mary Meeker maintained, "It is certain...that no teacher can nurture creative potential if she does not know what the characteristics are."[22]

The effectiveness of a school's G.A.T.E. program, like other programs, is largely related to the site principal's knowledge, support, and administrative skills. As the instructional leader of the school, the principal has the responsibility to fulfill the intent of the program

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[21] James M. Liphan and James A. Hoeh, Jr., The Principalship: Foundations and Functions (New York: Harper & Row, Publishers, 1974), pp. 210-213.

[22] Mary Meeker, "Measuring Creativity from the Child's Point of View," The Journal of Creative Behavior, 12, No. 1 (1978), 60-61.

legislation. Many teachers need the principal's direction, since studies indicate that most creative students spend eighty to ninety percent of their time in regular classrooms.[23] Furthermore, Torrance found that teachers often inhibit rather than enhance creative behavior in pupils.[24] Therefore, the principal needs to provide leadership to help discover creative students and develop their abilities.[25]

Some principals, however, lack knowledge and training in gifted education, of which creativity is one component. In a 1971 survey for Congress, S. P. Marland, Jr. reported that fifty-seven percent of the principals nationwide indicated that they had no gifted students.[26] Since gifted individuals appear in all populations, the principals who failed to identify gifted pupils may have lacked knowledge of those students' characteristics.

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[23] Vern Jones, "Current Trends in Classroom Management: Implications for Gifted Students," Roeper Review, 6 (1983), 26.

[24] Ronald G. Noland, Dewey W. English, and John F. von Eschenbach, "Perceptions of Gifted Students and Their Education," Roeper Review, 7 (1984), 27.

[25] Vicki L. Taylor, "Are You a Gifted Principal?," G/C/T, 31 (Jan.Feb., 1984), 16.

[26] Barbara Clark, Growing Up Gifted (Columbus: Charles Merrill Publishing Company, 1979), p. 137.

Eight years later, Curl still found the lack of knowledge of the term, gifted, as defined by the Federal government in his survey of principals in Kansas. Comparing the principals' scores with the scores of experts in gifted education, he found that principals scored forty-four percent lower than the experts on his survey of the characteristics of gifted students.[27] He concluded that Kansas principals did not understand giftedness in the same way as nationwide experts. Rather, they had a more restrictive concept.[28]

A lack of understanding among some principals of these characteristics appears to be a nationwide issue. This study addressed the following:

1. The characteristics California public school principals report to encourage or discourage in their recognized creative students.

2. The correlation of principals' rankings of creative students' characteristics with experts' rankings in E. Paul Torrance's Ideal Child Checklist (ICC).

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[27] Curl, op. cit., 62.

[28] Curl, op. cit., 60.

3. The relationship between principals' rankings of characteristics and the availability of programs for the creative students at their schools.

Purpose of the Study

With the current emphasis on principals' competency as evidenced by the Hughes Hart Education Reform Bill of 1983 in California, it is timely to examine the student characteristics of creativity that principals encourage or discourage.

Questions and Hypotheses

The specific research question was:

How do the California school principals rate the sixty-two characteristics of creative youth on the Ideal Child Checklist?

The null hypotheses investigated for testing in this study were:

Hypothesis 1

There is no correlation between the principals' ratings of the characteristics for creative youth and the experts' ratings.

Hypothesis 2

There is no difference between the means of principals in elementary and high school levels with regard to their ratings of the characteristics of creative students and the ratings by experts.

Hypothesis 3

There is no difference between principals with varying amounts of college course work in gifted education and their ratings of the characteristics of creative students.

Hypothesis 4

There is no difference between principals of varying school size and their ratings of the characteristics of creative students.

Hypothesis 5

There is no difference between principals of varying age and their ratings of the characteristics of creative students.

Hypothesis 6

There is no difference between principals of varying years of administrative experience and their ratings of the characteristics of creative students.

Hypothesis 7

There is no difference between principals regarding gender and their ratings of the characteristics of creative students.

Hypothesis 8

There is no difference between principals of varying school level and gender and their responses with respect to the four factors developed by Paguio:

(1) Factor I: Confident, Aggressive, Well-adjusted;

(2) Factor II: Socially Virtuous;

(3) Factor III: Negativistic, Critical; and

(4) Factor IV: Creative, Intuitive.

Hypothesis 9

There is no difference between the means of principals in elementary and high school levels who offer programs for creative students and those who do not offer programs for creative students with regard to their ratings of the characteristics of creative students.

Significance of the Study

A 1983 report on the G.A.T.E. program in California indicated trends which necessitate a high level of understanding from the school site principal in order to maintain quality programs for gifted students. First, more students are being served by the G.A.T.E. program. During the 1982-1983 school year, 200,000 students were involved which was an increase of 40,000 over the 1980-1981 school year. At the same time, the number of full-time equivalent G.A.T.E. coordinators decreased from 233 to 167.[29] The 1983 report emphasized the growing responsibilities for gifted education that will rest with the principal.

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[29] Christine T. Wood, "Final Report of the Evaluation of the Gifted and Talented Education Program," Xerox, December 1983, pp. 1-2.

The questionnaire for this proposed study assessed what characteristics California principals encourage for creative students. From a survey of creative geniuses, it appears that they tend to cluster in "golden ages". Depending upon the society's values, individuals may be inhibited or developed.[30] Mary Meeker stressed that children are very sensitive to adults' reactions to their creative efforts.[31] This study should provide useful information on the creative characteristics principals report to encourage in comparison with those encouraged by experts.

Procedures

Sample Selection

The State Department of Education reported 647 elementary districts and 112 high school districts in California during the 1984-85 school year.[32] Using a table

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[30] John Curtis Gowan and Meredith Olson, "The Society Which Maximizes Creativity," in Creativity: Its Educational Implications eds. J.C. Gowan, J. Khatena, and E. P. Torrance (Toronto: Kendall/Hunt Publishing Company, 1981) p. 317.

[31] Meeker, op. cit., 56.

[32] Telephone interview with Gayle Webb, CBEDS Statistician, California State Department of Education, 13 January 1986.

for determining sample size from a given population, the final accessible sample consisted of principals in 260 districts.[33] The sample was proportionally divided between the elementary and high school districts.

Data Collection Procedures

A mail survey approach was used to collect data for the proposed study. The questionnaire, cover letter, and stamped, addressed envelope were mailed to each of the principals in March, 1986. Two weeks later, a follow-up letter was sent to those who did not respond. A sixty-four percent response was obtained by following these procedures.

Research Methodology

In 1963, E. Paul Torrance developed the primary instrument that was used in this study. The Ideal Child Checklist is a fifteen year synthesis of over fifty empirical studies. The inventory contains sixty-two items within the affective domain that characterize creative pupils. Torrance selected a panel of ten experienced

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[33] California State Department of Education, Program Evaluator's Guide (Princeton: Educational Testing Service, 1977), p. c-36.

researchers to rank the items following Stephenson's Q technique procedure; a Likert scale will be used for this study to provide interval values for statistical purposes.

Instrument Validation and Reliability

To assess the instrument's reliability, Torrance administered pretest and posttest sessions and found a coefficient of reliability correlation to be .91. He administered the instruments to numerous groups.

The checklist was validated through a series of cross-cultural studies involving students and teachers from ten diverse societies. Using the Torrance Tests of Creativity and the Ideal Child Checklist, Torrance found a coefficient of .94 between the two instruments.[34]

The versatility of the checklist has been demonstrated by a number of studies. A recent comparison of teachers of gifted students and experts reported a correlation of .95 using the Torrance checklist.[35] Professors at Auburn

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[34] E. Paul Torrance, "Assessing Children, Teachers, and Parents Against the Ideal Child Criterion," Gifted Child Quarterly, 19, No. 2 (Summer 1975), 134-135.

[35] Douglas Murphy, Reva Jenkins-Friedman, and Nona Tollefson, "A New Criterion for the 'Ideal' Child?," Gifted Child Quarterly, 28, No. 1 (Winter 1984), 34.

University used the inventory in a study of their undergraduate student teacher program. They found an increasing agreement between the students and experts on the inventory as the students' training in gifted education progressed.[36]

Bachtold's study of gifted elementary and junior high students may emphasize the importance of familiarity with the characteristics. When identified gifted students were given the checklist, they eschewed many of the preferred characteristics selected by the experts.[37] Bachtold suggested that perhaps the reality of their school experience led them to deny the important qualities that they did not see valued by the adults in school. Some research studies have found that teachers do favor groups of students based on intelligence only over groups of students based on creativity only.[38]

In 1980, Paguio used the ICC to assess perceptions of mothers and fathers of the ideal child. Working with the sixty-two characteristics, he grouped those together which

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[36] Ronald G. Noland, Dewey W. English, and John F. von Eschenbach, op. cit., 29.

[37] Hall, op. cit., 14.

[38] Torrance, op. cit., 137-138.

correlated .30 or higher with each other. The sixty-two characteristics clustered into four factors. Paguio named the factors:

(1) Factor I: Confident, Aggressive, Well-Adjusted;

(2) Factor II: Socially Virtuous;

(3) Factor III: Negativistic, Critical; and

(4) Factor IV: Creative, Intuitive.[39]

Identification of creative children is important for both the individual and society. The 1982 U.S. Department of Education's report on identification stressed the need for a pluralistic assessment.[40]

The Torrance checklist meets many of the criteria established by the national government: advocacy, pragmatism, defensibility, equity, pluralism, and comprehensiveness.[41] A coefficient of .94 indicates the instrument's compliance with equity, pluralism, and

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[39] L. P. Paguio, "Sex Differences in Perceptions of Mothers and Fathers of the Ideal Child," Diss. University of Georgia, 1980, p. 40.

[40] E. Susanne Richert, "Identification of Gifted Children in the United States: The Need for Pluralistic Assessment," Roeper Review, VIII, No. 2 (November 1985), 68.

[41] Ibid., 68-69.

defensibility.[42] The sixty-two items of the checklist help to assure its comprehensiveness.

The checklist has proven value in assessing the attitudes of the significant participants in the educational process. Torrance believes that this is a powerful tool, because children tend to develop those characteristics that the significant adults in their lives encourage. An assessment of school principals would provide information about these important participants in the educational process.

Statistical Analysis

Principals' encouragement of creative children's characteristics was assessed using the data. Values of 1-6 were attributed to the respective responses: encourage very strongly, encourage strongly, encourage, discourage, discourage strongly, and discourage very strongly. Using each respondent's score, the specific research questions were addressed:

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[42] Torrance, op, cit., 135.

How do the California school principals rank the sixty-two characteristics of creative youth on the Ideal Child Checklist?

Mean ratings of values for each checklist item were calculated to rank the sixty-two items for all principals.

The following null hypotheses were studied:

Hypothesis 1

There is no correlation between the principals' ratings of the characteristics for creative youth and the experts' ratings.

The principals' ratings were compared with the ratings of experts obtained by Torrance. The Pearson Correlation Coefficient and the Spearman rho correlation coefficient were used to assess both the magnitude and rankings of comparison.

Hypothesis 2

There is no difference between the means of principals in elementary and high school levels with regard to their ratings of the characteristics of creative students.

The respondents were sorted into the elementary and high school groups. An Analysis of Variance (ANOVA) was used to investigate the data for statistically significant differences within the school levels. The difference between means for statistically significant items was divided by the standard deviation to determine items of substantial difference.

Hypothesis 3

There is no difference between principals with varying amounts of college course work in gifted education and their ratings of the characteristics of creative students.

The respondents were sorted into three groups (no courses in gifted education, 1-9 hours, and 10 or more hours). ANOVA was used to investigate the differences, and a mean difference with $p<.05$ was considered statistically significant. The difference between means for statistically significant items was divided by the standard deviation to determine items of substantial difference.

Hypothesis 4

There is no difference between principals of varying school size and their ratings of the characteristics of creative students.

The respondents were sorted into four levels of school size (under 100, 100-500, 501-1000, and over 1000). ANOVA was used to investigate the differences, and a mean difference with $p<.05$ was considered statistically significant. The difference between means for statistically significant items was divided by the standard deviation to determine items of substantial difference.

Hypothesis 5

There is no difference between principals of varying age and their ratings of the characteristics of creative students.

The respondents were sorted into four age levels (25-35, 36-45, 46-55, over 55). ANOVA was used to investigate the differences, and a mean difference with $p<.05$ was considered statistically significant. The difference between means for statistically significant items was divided by the standard deviation to determine items of substantial difference.

Hypothesis 6

There is no difference between principals of varying years of administrative experience and their ratings of the characteristics of creative students.

The respondents were sorted into four groups (under 2 years, 2-5 years, 6-10 years, and over 10 years). ANOVA was used to investigate the differences, and a mean

difference with $p<.05$ was considered statistically significant. The difference between means for statistically significant items was divided by the standard deviation to determine items of substantial difference.

Hypothesis 7

There is no difference between principals regarding gender and their ratings of the characteristics of creative students.

The respondents were sorted into two groups (male and female). ANOVA was used to investigate the differences, and a mean difference with $p<.05$ was considered statistically significant. The difference between means for statistically significant items was divided by the standard deviation to determine items of substantial difference.

Hypothesis 8

There is no difference between principals of varying school size and gender and their reponses with respect to the four factors developed by Paguio:

(1) Factor I: Confident, Aggressive, Well-adjusted;
(2) Factor II: Socially Virtuous;
(3) Factor III: Negativistic, Critical; and
(4) Factor IV: Creative, Intuitive.

The characteristics were sorted into the four factors. A two-way ANOVA was used to investigate the differences.

Hypothesis 9

There is no difference between the means of principals in elementary and high school levels who offer programs for creative students and those who do not offer programs with regard to their ratings of creative youth.

The respondents were sorted into two groups (those offering programs and those not offering programs). ANOVA was used to investigate the differences, and a means difference with $p<.05$ was considered statistically significant. The difference between means for statistically significant items was divided by the standard deviation to determine items of substantial difference.

Limitations of the Study

1. The study is limited to respondents from a random sample of principals in California public high school districts and elementary school districts.

2. The generalizability of findings is limited to what characteristics for creative students principals indicate they encourage or discourage. Actual principal behavior may be different.

3. Only one category of the Federal government's definition of giftedness, creativity, is addressed in this study.

4. Within the category of creativity, the Ideal Child Checklist focuses exclusively on the personality characteristics of the creative child. This awareness is only a first step to providing appropriate curriculum for the needs of the creative student.

5. The data which indicate schools that have programs for creative students provide no indicator of the quality or compatibility of the program with the characteristics of the creative student.

Assumptions

It is assumed that the characteristics identified by Torrance and the experts are indicators of creativity.

Definition of Terms

A selected list of terms used in this study are defined as follows:

Creativity. The human attribute of constructive originality; may include such factors as associative and ideational fluency, adaptive and spontaneous flexibility, and ability to elaborate in detail; may be fostered or inhibited by teaching procedures.[43]

G.A.T.E. Gifted and Talented Education Program established in 1980 by the California Assembly Bill 1040.

Gifted. The 1972 U.S. Office of Education definition: Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance.

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[43] Carter V. Good, ed., Dictionary of Education (New York; McGraw-Hill Book Company, 1973) p. 152.

These are children who require differentiated educational programs in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

1. General intellectual ability
2. Specific academic aptitude
3. Creative or productive thinking
4. Leadership ability
5. Visual and performing arts
6. Psychomotor ability

Gifted child. (1) a child whose mental age is considerably higher than his actual age compared with children in the general population; (2) a child who is far more educable than the generality of children; (3) a child whose performance is consistently remarkable in a worthwhile type of human endeavor.[44]

Mean effect. The mean effect is used to identify substantial differences between means. To find the mean effect, the difference between the means is divided by the standard deviation. A mean effect greater than .50 is considered substantial.

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[44] Ibid., p. 95.

Talent. Capacity and ability in a special field, or natural aptitude capable of high functioning under training.[45]

Organization of the Study

Chapter 1 outlined the statement of the problem and purposes of the study. Four additional chapters will complete the research. Chapter 2 is a review of the related literature. It presents an historical overview of the developing definitions of creative students, highlights identification procedures, and identifies various administrative strategies for serving creative students. Chapter 3 includes the sample selection and procedures used in obtaining and treating the questionnaire data. Chapter 4 contains an analysis and discussion of the research findings. Chapter 5 presents a summary of the study, conclusions, and recommendations for further research in the area.

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[45] Ibid., p. 582.

CHAPTER 2

Review of the Literature Related to this Study

The literature review for this study is organized under three main headings. First, an overview of theories of creativity is presented. Due to the complexity of the concept of creativity, there is no one definition that is accepted. In the second section, methods and procedures for identification are reviewed, and various programs for the creative are explored in the third section.

Overview of Theories of Creativity

Educators exploring the dimensions of creativity today are joining an investigation that Greek philosophers began centuries ago. Plato was one of the earliest explorers in the realm of creativity. He suggested that if the individual perceived all the beauties of the earth, the rational would cease and the nonrational vision of creativity would be realized.[1] In that state, he equated creativity with freedom. The freedom, however, was the result of the individual's complete internalization of the natural environment rather than his personal development.[2]

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[1] Philip P. Wiener, ed., Dictionary of the History of Ideas (New York: Charles Scribner's Sons, 1968), I, p. 583.

[2] Ibid., p. 584.

Aristotle, equally challenged by the idea of creativity, diverged from Plato's analysis in two ways. First, Aristotle maintained that creativity was an intellectual and rational state.[3] In contrast to Plato who implied that creativity mirrored the face of nature, Aristotle suggested that the individual through reason could define the creative product from other possibilities. Secondly, Aristotle placed greater emphasis on the individual. He outlined a training program to enhance the creator's abilities.[4] Recognizing the importance of the individual, Aristotle cautioned that creativity may be employed by either a virtuous or a vicious man.[5]

German philosophers of the eighteenth century also explored the field of creativity. Kant focused on the creative product. Like Aristotle, he maintained that the individual produced the product through a rational process.[6] Unlike Aristotle, however, Kant held that the creative individual had innate mental aptitudes that could not be

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[3] Abraham Edel, Aristotle and His Philosophy (Chapel Hill: The University of North Carolina Press, 1982), p. 337.

[4] Ibid., p. 359.

5 Ibid., p. 313.

6 Ted Cohen and Paul Guyer, eds., Essays in Kant's Aesthetics (Chicago: The University of Chicago Press, 1982), p. 171.

taught.[7] Hegel concurred with Plato on the important role of freedom in the creative process. He observed that creativity must be a realm of absolute spirit freed from restrictive limits.[8]

Writing in the nineteenth century, Nietzsche focused on the creative personality. From his perspective, man was presented with two choices: to be a creator or to be a creature. To choose the creator, Nietzsche maintained, was to choose detachment and estrangement from the mass of men. Those who chose the path of creativity, however, achieved a freedom from history and helped to define the timeless qualities of the creative individual. Furthermore, Nietzsche maintained that the goal of cultures should be the production and nurturing of those geniuses.[9]

In his work, Jung explored the psychological dimensions of the creative individual in the twentieth century. He emphasized the importance of freedom as the earlier philosophers had. He also introduced the influence of gender in creativity:

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[7] Ibid., p. 170.

[8] Stephen Donadio, Nietzsche, Henry James, and the Artistic Will ((New York: Oxford University Press, 1978), p. 46.

[9] Ibid., p. 179.

> Just as a man brings forth his work as a complete creation out of his inner feminine nature, so the inner masculine side of a woman brings forth creative seeds which have the power to fertilize the feminine side of the man.[10]

Jung suggested that creativity drew upon both the male and female nature.

In the context of this legacy, J. P. Guilford addressed the American Psychological Association in 1950. He challenged the members to consider the central importance of creative talent in industry, government, art, science, and education. Drawing upon the contributions of earlier philosophers, researchers followed the three directions that the philosophers had set. Aristotle, Nietzsche, and Jung had emphasized the importance of the creative individual. Hegel had identified the importance of the creative process, and Kant had stressed the significance of the creative product.

The Creative Individual

Gowan continued the exploration of the creative individual. He outlined five groups for consideration under the creative individual perspective. One group of researchers defined creativity as the cognitive, rational,

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[10] Violet Staub de Laszlo, ed., The Basic Writings of C. C. Jung (New York: The Modern Library, 1959), p. 179.

and semantic. A second group focused on creativity as a function of the personality and environment. The third group defined creativity through mental health. Freudian and neo-Freudian explanations were given for creativity by the fourth group. The fifth group under the creative individual perspective was the psychedelic. Gowan maintained that although the fifth group was less "scientific" than others, there was no reason to automatically reject it at this stage of understanding of creativity.[11]

Creativity as the cognitive, rational, and semantic. A number of researchers adopted the intellectual and rational interpretation of creativity associated with Aristotle and Kant. In his evaluation of cognitive abilities, Guilford developed the Structure of Intellect model which enabled him to identify cognitive factors of creativity. He stressed that divergent thinking was a key component of creativity. Further analyzing divergent thinking, Guilford listed its processes to include: (1) word fluency, (2) associational fluency, (3) ideational fluency, (4) expressional fluency, (5) adaptive flexibility, (6) spontaneous flexibility, (7) originality, and (8) elaboration.

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[11] John Curtis Gowan, Development of the Creative Individual (San Diego: Robert R. Knapp, Publisher, 1973), p. 7.

Amabile recognized the creative processes that Guilford described, but she added two more components to the cognitive approach to creativity. Domain-Relevant Skills (including knowledge, technical skills, and special talents) and Task Motivation, Amabile suggested, were essential components of creativity in the cognitive sphere.[12]

Hallman did work in the cognitive domain also. He brought a less theoretical approach to his explanation of creativity in the cognitive area. Hallman termed cognitive creativity as "connectedness" and defined it as

> The need to create by bringing already existing elements into a distinctive relation to each other. The essence of human creativeness is relational, and an analysis of its nature must refer to the connectedness of whatever elements enter into the creative relationship. The analysis must demonstrate that though man does not create the components, he can nevertheless produce new connections among them. It must prove that these connections are genuinely original and not simply mechanical. Logically, this means that connectedness comprises relationships which are neither symmetrical nor transitive; that is, the newly created connections as wholes are not equivalent to the parts being connected. Neither side of the equation validly implies the other, for the relationship is neither inferential nor causal; rather, it is metaphoric and transformational.[13]

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[12] Teresa M. Amabile, The Social Psychology of Creativity (New York: Springer-Verlag New York Inc., 1983), p. 67.

[13] Gowan, op. cit. p. 7.

In many respects, Hallman's definition of creativity reflected Plato's interpretation. First, Plato emphasized the importance of man's total connectedness with all existing elements. Secondly, both Plato and Hallman treat creativity as a metaphoric experience.

Hallman also shared commonalities with other twentieth century researchers. The existing elements that Hallman identified may parallel the Domain-Relevant Skills that Amabile discussed. His creative thought process is markedly similar to Guilford's divergent thinking component and its processes.

Many of the researchers in the cognitive group grappled with the relationship of creativity to intelligence. Getzels and Jackson questioned the assumption that intelligence and creativity were so related that it would be impossible to identify individuals who are high in one and not concomitantly high in the other. To explore this assumption, they selected two groups, one high in intelligence but not as high in creativity and the other group high in creativity but not as high in intelligence. From their research, they found a relatively low relationship between the IQ metric and measures of

creativity.[14] Getzels and Jackson did not conclude from this research that no relation between intelligence and creativity existed. They maintained that their research did refute the initial assumption that intelligence and creativity are synonymous. Since they did find a positive correlation between IQ and creativity measures, they concluded that a certain amount of intelligence was required for creativity.[15]

Taylor, in contrast to Getzels and Jackson, argued that creative talent may be considered essentially separate and dimensionally independent from traditional intelligence scores. He maintained that since the amount of overlap between intelligence test scores and creativity scores is so small, creative individuals may be considered as a second type of giftedness.[16] Guilford concurred with Taylor, and

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[14] Jacob W. Getzels and Philip W. Jackson, Creativity and Intelligence (London: John Wiley & Sons, Inc., 1962), p. 25.

[15] Ibid., p. 125.

[16] Calvin W. Taylor, "How Many Types of Giftedness Can Your Program Tolerate?," The Journal of Creative Behavior, 12, No. 1 (1978), 42.

he suggested that creativity and creative productivity extend beyond the domain of intelligence tests. He argued that researchers must look beyond the boundaries of the typical IQ test to fathom the domain of creativity.[17]

Perhaps the concerns of Guilford and Taylor more directly challenge the ability of intelligence tests to truly assess all dimensions of intelligence than they challenge the positive relationship between intelligence and creativity. Guilford's observation, "There are almost no cases of very high divergent production ability along with very low IQ...." indicated his belief that some relationship does exist between intelligence and creativity.[18]

Numerous researchers have addressed the relationship between intelligence and creativity. Frank Barron questioned the validity of the IQ test, and he suggested that since the IQ score shows only what the examinee was willing to do in the testing situation and since the test is loaded with verbal comprehension shaped by society, that it does not provide a true assessment of the intelligence.

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[17] J. P. Guilford, Intelligence, Creativity, and Their Educational Implications (San Diego: Robert R. Knapp, Publisher, 1968), p. 79.

[18] Ibid., p. 136.

With more accurate assessment, the relationship between intelligence and creativity may be clearer. Barron held that a minimum IQ was probably necessary in order to engage in creative activity at all.[19]

Torrance also explored the minimum IQ range necessary to support creative thinking abilities. From his research, Torrance suggested that an IQ of 120 was needed for an individual to function creatively.[20] Arieti and Gowan also supported a base IQ of 120 as a necessity for creativity.

Other researchers, however, see a strong relationship between intelligence and creativity. Diessner concluded from his research that creativity scores increase with IQ scores. Following that trend, he suggested that with higher IQ scores, higher creativity scores may be expected.

In a study of students with IQ scores of 130 or higher, Hall found that the relationship between creativity and IQ varied with the ages of students. At twelfth grade, she found a high correlation (.83) between high IQ students and high creative students. She suggested that other factors

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[19] Frank Barron, Creative Person and Creative Process (New York: Holt, Rinehart and Winston, Inc., 1979), p. 43.

[20] E. Paul Torrance, Guiding Creative Talent (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1962), p. 63.

may cloud the relationship between intelligence and creativity at times.[21]

Yamamoto found Torrance's Minnesota Tests of Creativity to correlate as high as .88 with intelligence measures. His research supports a strong relationship between creativity and intelligence.

In summary, the investigator concluded that Guilford renewed interest in this perspective that Aristotle had initiated centuries ago. By identifying the duality of convergent thinking and divergent thinking, Guilford questioned the role of intelligence in creativity. Many researchers have debated that question. A number of investigators (Dressner, Hall, Yamamoto) have not found a polarity between intelligence and creativity, while others (Taylor, Guilford) do see a distinction.

In addition to raising an unresolved question, Guilford identified creative thought processes. These general processes of fluency, flexibility, originality, and

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[21] Eleanor G. Hall, "Longitudinal Measures of Creativity and Achievement for Gifted IQ Groups," The Creative Child and Adult Quarterly, X, No. 1 (1985), 15.

elaboration have been widely accepted by other researchers in the field. Guilford's work has spurred countless other researchers to explore this important dimension.

Creativity as a function of personality, environment and mental health. Researchers are divided on their approach to the study of Gowan's second and third groups. One approach focuses on the creative person as a composite; the other approach assesses the component traits of the creative individual.

Maslow followed the approach to the creative person as a totality. He suggested that the creative person may not be factored into components. Rather, the creative person was a composite characterized by good mental health. Maslow equated the self-actualizing person with the creative individual.[22]

Rogers also supported Maslow's approach. He maintained that through self-actualization, individuals may demonstrate openness and flexibility, both personality characteristics of the creative. The well-adjusted individual, Rogers suggested, reflected "an internal locus of evaluation" and

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[22] Gowan, op. cit., p. 13.

an "ability to toy with objects".[23] Each of those qualities was associated with the creative personality.

Numerous researchers have explored the second approach, assessment of the traits of the creative individual. In 1926, Cox identified personality traits of three hundred identified geniuses throughout history. She identified the following personality traits: sense of humor, self-esteem, trustworthiness, impulsive-kind, and unconventionality.

Hirsh explored the specific traits of the creative personality during the 1930s. He identified five unique traits: bashful, oversensitive, melancholy, fond of solitude, and values friendship.

Researchers have continued to refine the traits. Fromm identified four personality traits of creative individuals. These included the capacity to be puzzled, the ability to concentrate, the capacity to accept conflict, and willingness to be reborn every day.[24]

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[23] Ibid.

[24] Ralph J. Hallman, "The Necessary and Sufficient Conditions of Creativity," in Creativity: Its Educational Implications, eds. J.C. Gowan, J. Khatena, and E.P. Torrance (Toronto: Kendall/Hunt Publishing Company, 1981), p. 19.

Bosse studied the personalities of forty-three identified creative students in fourth through sixth grades. She found highly creative student behavior characterized by:

(1) More use of humor.

(2) More frequent violation of school rules.

(3) More adventurous behavior.

(4) More non-defensive behavior.[25]

After surveying numerous personality assessments of the creative, Torrance developed a comprehensive list of characteristics of the creative personality. His list, the Ideal Child Checklist, was a synthesis of previous researchers' profiles of the creative.

Torrance's research into the creative personality identified gender conflicts for the creative in our society. Perhaps he was influenced by Jung's investigation of gender in creativity. Torrance found that both sensitivity and assertiveness were associated with creativity. Yet in our society, the creative boy who possesses sensitivity may be negatively assessed as "feminine", while the creative girl

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[25] Murella A. Bosse, "Do Creative Children Behave Differently?," The Journal of Creative Behavior, 13, No. 2 (1979), 121.

who possesses assertiveness may be negatively termed "masculine".

Further conflicts in creative personality traits were identified by another group of researchers. They maintained that personality traits of the creative must be defined for each field of endeavor. The traits for creativity in one field may not result in creativity in another field. Repucci, for example, studied the personality traits of creative scientists.[26] Repucci found creative scientists to be optimistic, extraverted, nonanxious, independent, and confident. The least successful scientists did not share those characteristics.[27]

To avoid the splintering effect of identifying creativity relative to a field, most of the efforts of researchers of the creative personality have contributed to a more definitive picture of the creative individual in all areas. Torrance maintained that his Ideal Child Checklist, for example, enabled the researcher to differentiate the personality characteristics of some group of high productive, creative people from a similar group of less

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[26] L.C. Repucci, "What Research Reveals About Creativity," in Training Creative Thinking, eds. Gary A. Davis and Joseph A. Scott (New York: Holt, Rinehart and Winston, Inc., 1971), p. 64.

[27] Ibid., p. 168.

creative people regardless of the field or even nationality.[28]

Freudian and neo-Freudian explanations for creativity. Sigmund Freud challenged researchers to look more closely at the psychoanalytic dimension of creativity. Freud suggested that the sublimination of the sexual urge produced creative energy. Jung furthered the psychoanalytic exploration of creativity. He emphasized the importance of the interior fantasy process characterized by originality, consistency, intensity, and subtlety.[29] Freedom was of prime importance for the creative process. Otto Rank, another disciple of Freud, equated the integration of the self-concept with creativity. Those who were able to move through the autonomy period and civilized man's internal struggle would arrive at a third stage that Rank termed the true creative artist.[30]

Kris also adopted the psychoanalytic approach to creativity. He suggested that creativity emerged when the

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[28] E. Paul Torrance, "Assessing Children, Teachers, and Parents Against the Ideal Child Criterion," Gifted Child Quarterly, 19, No. 2 (Summer 1975), 130.

[29] Carl Gustav Jung, Psychology and Education, The Collected Works of C.G. Jung, Vol. 17 (Princeton: Princeton University Press, 1954), p. 128.

[30] Gowan, op. cit., p. 16.

ego loosened control and allowed regression to a preconscious level of thinking. By abandoning logical, rational thought, as Plato indicated, creative vision was achieved.[31]

Kubie shared the belief that the preconscious was the source of creative thought. He believed, as Jung, that freedom was essential for the creative individual to synthesize ideas.[32]

Whiteside recognized the importance of the preconscious for the creative also. She differentiated the creative from the psychotic who are stranded in the preconscious. She cautioned that the creative may linger too long in the preconscious or lose their way in the darkness.[33]

The approach of the Freudian and neo-Freudian scholars to creativity is similar to Nietzsche's view of the creative individual. Creativity is achieved in a non-rational realm often rooted in fantasy. Nietzsche described the

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[31] Thomas V. Busse and Richard S. Mansfield, "Theories of the Creative Process: A Review and a Perspective," The Journal of Creative Behavior, 14, No. 2 (1980), 91.

[32] Ibid., 92.

[33] Marilyn Whiteside, "Rare Beasts in the Sheepfold," The Journal of Creative Behavior, 15, No. 3 (1981), 194.

preconscious as the ultimate absorption into the primal womb. It appeared both terrifying and seductive.[34]

Both the views of Nietzsche and Whiteside appear to challenge the theory of creativity held by Rogers and Maslow. For Rogers and Maslow, creativity is a function of good mental health and adjustment. Nietzsche and Whiteside, in contrast, suggest that the truly creative may experience periods of mental unbalance.

Psychedelic creativity. This group of creativity theorists explained creativity in paranormal terms. Hallman described this theory as

> spontaneous, uncontrolled events which cluster themselves seemingly in accordance with their own autonomous laws. It involved the relaxation of conscious thinking and the inhibitions of logical control.... Being singular, unpredictable, idiosyncratic it resists formal description.[35]

Since the field of creativity is still being explored, this group will not be omitted, but its contribution to the body of research currently is limited.

Each of the areas reviewed centered on the individual. Since people are the producers of creativity, an understanding of the creative individual is essential. Other researchers have consolidated the five areas outlined

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[34] Donadio, op. cit., p. 171.

[35] Hallman, op. cit., p. 22.

by Gowan. For example, Taylor suggested three areas to explore for the creative individual: intellectual, motivational, and personality. He incorporated Guilford's concept of divergent thinking within the intellectual area. He separated personality traits such as Torrance identified into two distinct areas: motivation and personality.

Traits associated with motivation included: drive, dedication to work, resourcefulness, striving for general principles, desire to bring order out of disorder, and desire for discovery. Within personality factors, he included independence, self-sufficiency, tolerance for ambiguity, femininity of interests, and professional confidence.[36]

Reviewing the various dimensions of the theories related to the creative personality, Gowan suggested that the various groups may be viewed as a continuum. Each segment discussed, when integrated into a total theory, creates what Gowan termed a "structure d'ensemble" providing greater insight into giftedness than we have earlier known.[37]

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[36] Silvano Arieti, Creativity: The Magic Synthesis (New York: Basic Books, Inc., Publishers, 1976), p. 347.

[37] John C. Gowan, "Creativity and Gifted Child Movement," The Journal of Creative Behavior, 12, No. 1 (1978), 12.

The Creative Process

Some researchers chose to define creativity through the process. Torrance suggested that the creative process included sensing gaps or disturbing missing elements; forming ideas or hypotheses, communicating the results, and possibly modifying and retesting the hypothesis. He cautioned that the explanation did not represent a set of discrete abilities or pure factors.

Wallas identified four steps in the creative process: preparation, incubation, illumination, and revision. Rossman expanded the four steps to seven stages: observation of a need or difficulty, analysis of the need, survey of all available information, formulation of all object solutions, critical analysis of solution, birth of a new idea, experimentation.[38] Taylor described the creative process in five levels: expressive creativity or independent expression, production creativity, inventive creativity, innovation, and emergent.

Wallach and Kogan outlined a process similar to Taylor. After observing that unique ideas appear relatively infrequently, however, they cautioned that time restraints during the creative process should be abandoned.[39]

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[38] John C. Gowan, Development of the Creative Individual (San Diego: Robert R. Knapp, 1972), p. 8.

[39] Anne Sokolow Levine, "Creativity and Intelligence in Three-Year-Old Children," Diss. University of California, 1983, p. 9.

The definition of creativity by process, however, does have its limitations. Simply going through the steps outlined by the various researchers in this group, will not assure that the individual is a creative person nor that the product will be considered truly creative.

The Creative Product

There is a long tradition of defining creativity by the product. Kant maintained that creativity lies in the product of the creative effort.[40] The creative effort was characterized by the "production power of imagination" which produced a "figurative synthesis".[41] Kant denied that creativity in this sense could be taught to an individual.

Many researchers today continue to focus on the creative product. Perkins suggested that the ultimate criterion of creativity was output.[42] He argued that a person may be termed creative when that person consistently achieves creative results.

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[40] Cohen and Guyer, op. cit., p. 170.

[41] Ibid., p. 171.

[42] D. N. Perkins, "Creativity By Design," Educational Leadership, 12, No. 1 (1984), 18-19.

Amabile too supported Perkins' emphasis on the product and maintained that the concept of creativity may not be defined adequately by the process or the person. She observed that some progress had been made in understanding the creative process, but a clear and sufficiently detailed outline of the creative process had not been delineated. Likewise a discrete set of personality traits to identify the outstanding individual was not available. Therefore, she suggested that the definition of creativity most likely to be useful for empirical research was one grounded in an examination of products.

To define the product, Amabile explained that the creative production

> is both a novel and appropriate, useful, correct or valuable response to the task at hand, and the task is heuristic rather than algorithmic.[43]

Amabile distinguished between heuristic and algorithmic. Heuristic, in contrast to algorithmic, implied a task in which there was no straightforward path to the solution.

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[43] Amabile, op. cit., p. 33.

Jackson and Messick agreed with Amabile's requirement of novelty and appropriateness. They maintained, however, that a final standard for a truly creative product was that it possess the quality to transform conventional constraints of reality into new forms which demand a revision in the viewer's thinking.[44]

In evaluating this approach to creativity, Mooney observed that the emphasis is given to the product over the producer. The individual creator's importance lies in the creation. Therefore, the selection of creative individuals using this definition would require first selecting the products and then identifying the producers.[45]

This perspective appears to have the least applicability to schools. The exclusive focus on the product overlooks the creative potential. Schools dealing with young people may see little evidence of creative products, but the period for nurturing the creativity includes the school years.

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[44] Levine, op. cit., p. 3.

[45] Ross L. Mooney, "A Conceptual Model for Integrating Four Approaches to the Identification of Creative Talent," in A Source Book for Creative Thinking, eds. Sidney J. Parnes and Harold F. Harding (New York: Charles Scribner's Sons, 1962), p. 74.

Although the concept of creativity is multi-faceted, analysts have chosen to address three components: the individual, the process, and the product. Within each area great strides have been made. When Guilford first addressed creativity in the 1950s, little scholarly research was evident in the field.

From the individual perspective, attention has focused on the cognitive, personality, mental health, psychoanalytic, and psychedelic dimensions. Most researchers in the cognitive sphere have acknowledged a positive relationship between creativity and intelligence. The personality dimension has merited the most empirical research to date.

Within the process perspective, most researchers, although using different terminology, concur with four basic steps: preparation, incubation, illumination, and revision. With her definition of the heuristic task, however, Amabile questioned the possibility of defining the creative process. She stated that the creative process was inherently one in which the path to the solution was not completely straightforward. Therefore, creativity could not be totally defined by the process.

The product perspective may be most useful for empirical research because it is tangible. However, the definition of creativity would be greatly limited if restricted to the creative product only.

Since it is recognized that all creative people do not practice the creative process nor produce creative output at all times, each of these perspectives merits continued exploration and consideration. Taken together, each perspective may help to produce a definition of creativity.

Further research in the meaning of creativity is needed. Isaksen, Stein, Hills, and Gayskiewicz developed a model for the planning of future creativity research. Much of the research reviewed by the investigator may fall within their model. Three aspects of dimensions were included in the model: the units of analysis, the principal context, and the process aspect.[46] The first dimension of the matrix, units of analysis, included individuals, dyads, small groups, organizations, and societies or cultures. Gowan, Taylor, and Torrance have pursued research in this area. The second dimension, principal context, included research,

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[46] Scott G. Isaksen, Morris I Stein, David A. Hills, and Stanley S. Gayskiewicz, "A Proposed Model for the Formulation of Creativity Research," The Journal for Creative Behavior, 18, No. 1 (1984), 72.

theoretical purposes, training, instrumentation and assessment, applications, and identification and selection. Amabile's work contributed to this category. The third dimension, process aspect, is concerned with the creative process: data retrieval, problem formulation, ideation generation, decision-making and evaluation, implementation, acceptance or diffusion. This dimension represents a consolidation of the seven steps outlined by Rossman. The three-dimensional model pictures the integral relationship between the individual, process, and product.

Methods and Procedures for Identification

With a working definition of creativity from three perspectives (the individual, the process, and the product), this section will focus on methods and procedures for the identification of the creative. Four areas will be covered: identification techniques keyed to the individual, the process, the product, and limitations of the current identification methods.

Identification Techniques for the Individual

Creativity tests which assess the cognitive dimension of the individual share Guilford's notions of divergent

thinking. Guilford's Divergent Production Tests were developed to measure abilities essential in the creative process. Although the tests identified twenty-four distinct divergent production abilities, their reliability has been questioned.

The Torrance Tests of Creative Thinking also focus on the cognitive dimension. Through oral, written, and drawn responses, the tests assess four criterion components: fluency, flexibililty, elaboration, and originality. These tests are frequently used and maintain their reliability.

Numerous assessments have been developed for the personality dimension. Specifically designed tests to assess traits of creative individuals include: What Do You Think? by Davis and Subkoviak, Group Inventory for Finding Creative Talent by Rim and Davis, The Ideal Child Checklist by Torrance, and the Minnesota Multiphasic Personality Inventory by Torrance. Each of these instruments relies on the research on the creative personality to assess each individual.

The Minnesota Multiphasic Personality Inventory is especially effective in the realm of sexual identification

and interests.[47] MacKinnon found unusually high peaks on the Masculine-Feminity Scale for a group of creative architects. The subjects showed an openness to their feelings and emotions, a sensitive awareness of self and others, and a wide-ranging interest in many fields, all of which are regarded as feminine in our culture.

The Ideal Child Checklist was developed to provide a criterion of the productive, creative person. It includes traits with both a positive and negative connotation. The inventory identifies the student's creative attitude, critical attitude, and confidence, all of which are important qualities of the creative individual.

Biographical inventories also assess the creative individual. The Alpha Biographical Inventory, for example, includes 165 items in five categories -- family history, educational history, leisure activities, physical characteristics, and miscellaneous.

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[47] Torrance, op. cit., p. 68.

Identification Techniques for the Process

Few tests assess the creative process. Gheselin, Rompel, and Taylor created the Creative Process Checklist. Their checklist was based on scientists' recall of the process in problem solving after completion of a task. The researchers did find some differences between the "metacognition" of scientists who were considered creative and scientists who were not considered creative.[48]

Identification Techniques for the Product

Creative individuals may be identified also by their products. Jackson and Messick focused on the response to products as a measure of creativity. The four aesthetic responses ranged from surprise to unusualness, satisfaction with appropriateness, stimulation to transformation, and savoring to condensation.[49]

Amabile suggested using a consensual assessment technique for identifying creative products and their creators. First, experts in the field are selected. Next,

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[48] Amabile, op. cit., p. 23.

[49] Ibid., p. 29.

they formulate guidelines and then assess the product. She acknowledged that this assessment was limited by the historical time and place.

Limitations of Identification Methods

The measurement of creativity is still at a primitive stage. Treffinger maintained that there is no single assessment instrument that is universally accepted. He surveyed over sixty instruments which purported to measure some aspects of creativity. He attacked the concept that there should be one instrument to yield a single score.[50]

In reviewing the state of identification, Torrance suggested areas to address: studies of creative products across various domains or fields of productivity, tools for assessing critical and creative thinking in the context of real problem solving, and multivariate analysis of various components of creativity and ways in which combinations of data might significantly enhance long-term prediction of creative accomplishments.[51]

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[50] Donald J. Treffinger, "Research on Creativity," Gifted Child Quarterly, 30, No. 1 (1986), 16.

[51] Ibid.

Amabile stated other weaknesses in creativity tests. First, she felt that the question validity is suspect in many tests because they are validated against each other. Secondly, the tests assess narrow ranges of abilities, and thirdly, the scoring is often subjective, and results depend on the test scorer's intuitive assessment of what is creative.

Thorndike also criticized creativity tests for their lack of internal consistency. He observed that creativity tests do not seem to test any common characteristic. Barron suggested that the highly creative become annoyed at the superficiality of typical creativity tests. Yamamoto warned that factor-analytic model scores may not accurately reflect the composite ability of an individual.[52] Barbara Clark suggested that important elements of the creative personality, sensing, feeling, and intuitive functioning, may defy traditional assessment.

The literature research indicated that the creative personality has the most assessment tools. Even the designers of these tools, however, caution against their exclusive use. To best identify the creative, assessment in

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[52] Barbara Clark, Growing Up Gifted (Columbus: Charles Merrill Publishing Company, 1979), p. 247.

each of the three areas, personality, process, and product would be recommended.

Various Programs for the Creative

Although philosophers vary on the degree to which creativity may be taught, there is general agreement on its importance to society. Nietzche observed that "The goal of humanity cannot be in the end but only in its highest specimens."[53]

Therefore, society has a responsibility to provide a nurturing environment for creative individuals. Since schools are such a dominant element in students' environment, school administrators must carefully consider the program that they are offering for their creative students.

Research has indicated that creativity may be enhanced or diminished. A series of studies undertaken by the Creative Education Foundation reported:

(1) Creative imagination can be deliberately developed.

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[53] Donadio, op. cit., p. 100.

(2) Creative problem-solving courses can measurably improve students' abilities.

(3) A systematic course of instruction in applied imagination can also produce significant gains in personality traits such as confidence, initiative and leadership potential.[54]

Rose and Lin also supported the inclusion of creative programs in schools. They maintained that creativity programs that combine several essential creativity components such as brainstorming have an effect on creativity. They concluded that creative thinking is a skill that can be developed through teaching. Through education and training, the innate creative thinking ability of individuals may be stimulated and nourished.[55]

In providing a program for the creative, administrators may consider the following areas: grouping, classroom environment, teachers, approach to students, and curriculum.

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[54] Sidney J. Parnes, "Can Creativity Be Increased?" in A Source Book for Creative Thinking, eds. Sidney J. Parnes and Harold F. Harding (New York: Charles Scribner's Sons, 1962), p. 186.

[55] Laura Hall Rose and Hsin-Tai Lin, "A Meta-Analysis of Long-Term Creativity Training Programs," The Journal of Creative Behavior, 18, No. 1 (1984), 21.

Grouping

Research has indicated that in a homogenous ability level, superior students engaged in more creative activities and felt more positively about school in general. The grouping encouraged intrinsic motivational orientations. Moreover Torrance found that creative students in heterogeneous classes may decline in creativity. He documented a consistent drop in creativity test scores after the third year of elementary school for heterogeneous classes. He attributed a possible cause for the decline to the pressure to conform exerted by peers.

Classroom Environment

Many researchers support the contention that relatively informal classroom environments will facilitate creativity more than the traditional restrictive classroom environment. Of thirty-three studies on open classrooms, Horwitz found that children in open classrooms were more creative. None of the studies reported a drop in creativity.

Pagano also studied the influence of the classroom environment on the creative individual. From her observations, she identified five components of the classroom environment which appear to enhance creative abilities:

(1) An open environment.

(2) Active use of creative skills.

(3) A use of previous knowledge.

(4) A disciplined use of techniques.

(5) An association with artists.[56]

She cited studies which had found higher achievement scores for children who were in environments characterized by the five components.

Teachers

In-service for teachers is important. They must be familiar with signs of creative development. Torrance identified a number of topics to cover: developing provocative questions, developing elaboration ability, and developing creative problem solving skills.

Approach to Students

Torrance recommended the following: provide a refuge for students, be a sponsor or patron, help the creative individual understand his divergence, let him communicate his ideas by listening to him and helping him to get

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[56] Alicia L. Pagano, "Learning and Creativity," The Journal of Creative Behavior, 13, No. 2 (1979), 131.

listened to by others, make efforts to get his creative talents recognized and rewarded, and help parents to understand him.[57]

Curriculum

Gallagher provided some general guidelines for curriculum:

(1) Organize and base the curriculum primarily on the teaching concepts, rather than facts.

(2) Allow more individual assignments of projects under competent supervision.

(3) Bring the students into contact with the maximum talent and knowledge available on the teaching staff.

(4) Follow the general philosophy that "Truth is something to be sought for, rather than something that will be revealed."

(5) Provide more competence in content and pedagogy in teacher training.[58]

As far as specific curriculum, two of the earliest efforts were brainstorming, introduced by Alex Osborn, and

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[57] Torrance, op. cit., p. 128.

[58] James J. Gallagher, Teaching the Gifted Child, (Boston: Allyn and Bacon, Inc., 1975), pp. 254-255.

synectics, developed by William J. Gordon. Sidney Parnes further developed brainstorming. The basic operation is an outpouring of ideas without evaluation while the "storm is on." It is also deferred judgment. Four rules should be followed during the process: adverse criticism is taboo, freewheeling is welcomed, quantity is wanted, and combination and improvement are sought.

An essential ingredient for creativity appears to be freedom. Numerous researchers have referred to the importance of freedom in the school programs. That ingredient, however, poses a dilemma for schools which also are charged with instilling a degree of conformity in students. Nietzsche identified this conflict:

> It is clear why our academic thinkers are not dangerous, for their thoughts grow as peacefully in the fields of tradition as any tree ever bore its apples.[59]

Ungersma provided an updated perspective on this dilemma:

> In public education, we encourage initiative, originality, fresh ideas ..., but when these appear, ... comes the temptation to caution: 'Behave, be careful, don't rock the boat, become a productive part of the system!'.[60]

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[59] Donadio, op. cit., pp. 138-139.

[60] Aaron John Ungersma, "Fantasy, Creativity, Conformity," Humanitas, XII, No. 1 (February 1976), 79.

In light of this conflict, providing a curriculum to nurture and encourage creativity is truly a challenge.

Summary

This review of the literature has included an overview of theories on creativity, methods and procedures for identification, and various programs for the creative. Creativity theories center around the individual, the process, and the product.

The greatest body of research has explored the dimensions of the creative individual. The methods and procedures for identification reflect the three areas of the individual, process, and product. Research into programing for the creative reveals that creativity may be taught and enhanced.

There is evidence from the literature that an appreciation of the personality dimension of creativity holds great importance for children in our schools where creativity may be nurtured. Chapter 3 will describe the research procedures used in the study of school principals' perceptions of the characteristics of creative students.

CHAPTER 3

Methodology and Procedures

The purpose of this study was to investigate the expressed perceptions of public school principals of the characteristics of creative students. In this chapter, the procedures are described under the following headings: (1) sample selection process, (2) development of the inventory, (3) data collection procedures, and (4) questions/hypotheses and data analysis.

Sample Selection

The population of the study consisted of a random sample of public school principals in elementary and high school districts in California. According to the California State Department of Education, there were 647 elementary districts and 112 high school districts in California during the 1984-1985 school year. Using a table for determining sample size from a given population, the investigator selected the final sample which consisted of 260 school districts. This representative sample was thiry-four percent of the

population. In order to maintain the same proportion of elementary and high school districts in the sample as was in the population, percentages of each type of district in the population were calculated and applied to the sample size. Upon completing this stratified sampling, 215 elementary districts (83 percent) and 45 high school districts (17 percent) were selected. Of the total sample selection, 166 responses were received.

The sample was characterized by five independent variables. These variables included school size, years of experience as principal, age, gifted education courses taken, and sex. Tables 1-5 illustrate the distribution of the independent variables in this study.

TABLE 1

Distribution of Sample Participants
by School Size Measured in AVERAGE DAILY ATTENDANCE (ADA)

	Subscale	Frequency	Percent
A.	Under 100 ADA	9	5.4%
B.	101-500 ADA	70	42.2%
C.	501-1000 ADA	63	38%
D.	1001 and Above ADA	24	14.4%
	TOTAL	166	100%

TABLE 2

Distribution of Sample Participants
by Years of Experience as Principal

Subscale	Frequency	Percent
A. Under 2 Years	34	20.5%
B. 2-5 Years	35	21.1%
C. 6-10 Years	33	19.9%
D. 10 Years and Over	61	36.7%
E. Not Given	3	1.8%
TOTAL	166	100%

TABLE 3

Distribution of Sample Participants
by Age

Subscale	Frequency	Percent
A. 25-35 Years	8	4.8%
B. 36-45 Years	61	36.7%
C. 46-55 Years	66	39.8%
D. 55 and Over	25	15.1%
E. Not Given	6	3.6%
TOTAL	166	100%

TABLE 4

Distribution of Sample Participants
by Units of Courses Taken
in Gifted Education

Subscale	Frequency	Percent
A. None	54	32.5%
B. 1-9 Hours	90	54.2%
C. 10 Hours or More	20	12.0%
D. Not Given	2	1.2%
TOTAL	166	100%

TABLE 5

Distribution of Sample Participants
by Sex

Subscale	Frequency	Percent
A. Male	101	60.8%
B. Female	55	33.1%
C. Not Given	10	6.1%
TOTAL	166	100%

Development of the Survey

The Ideal Child Checklist is composed of personality characteristics that have been found in empirical studies to differentiate the creative person from the less creative individual. A panel of ten experts in the field of the creative personality was consulted to evaluate the checklist by ranking the items from most desirable to least desirable. The experts' rankings are listed in Table 6.

TABLE 6

RANKING OF THE ITEMS ON THE IDEAL CHILD CHECKLIST BY THE EXPERTS

Ranking	Characteristic
1.	Courageous in convictions
2.5	Curious, searching
2.5	Independent in thinking
4.5	Independent in judgment
4.5	Willing to take risks
6.	Intuitive, insightful
8.	Persistent, persevering
10.	Visionary, idealistic
11.5	Adventurous, testing limits
11.5	Self-starting, initiating
13.	Asking questions about puzzling things, wants to know
14.	Emotionally aware/sensitive
16.	Determined, unflinching
16.	Guessing, hypothesizing
16.	Striving for distant goals
18.	Attempting difficult tasks
19.	Self-confident
20.5	Energetic, vigorous
20.5	Self-sufficient

TABLE 6 (Continued)

RANKING OF THE ITEMS ON THE IDEAL CHILD CHECKLIST BY THE EXPERTS

Ranking	Characteristic
22.5	Preferring complex tasks
22.5	Sense of humor
24.	Thorough, exhaustive
26.	Never bored, always interested
26.	Sincere, earnest
26.	Truthful, even when it hurts
29.	Liking to work alone
29.	Regressing occasionally, may be playful, childlike
29.	Self-assertive
32.	Industrious, busy
32.	Remembering well
32.	Sense of beauty
35.	Feeling/expressing emotions strongly
35.	Receptive to the ideas of others
35.	Spirited in disagreement
37.	Disturbing procedures and organization of the group
38.	Desirous of excelling
40.	Stubborn, obstinate
40.	Critical of others
40.	Versatile, well-rounded
43.5	Fault-finding, criticizing
45.	Competitive, trying to win
46.	Considerate of others
47.5	Healthy, physically
47.5	Talkative, verbally fluent orally
49.	Altruistic, working for good of others
50.5	Popular, well-liked
50.5	Reserved, suppressing feelings
52.	Domineering, controlling
53.5	Physically strong
53.5	Quiet, not talkative
55.	Negativistic, resistant
57.	Haughty, proud
57.	Neat and orderly
57.	Refined, free of coarseness
59.5	Doing work on time
59.5	Socially well-adjusted
61.	Courteous, polite
62.5	Obedient, submissive to authority
62.5	Timid, shy, bashful
64.	Fearful, apprehensive
65.	Willing to accept judgments of authority
66.	Conforming, strictly follows rules

Torrance's original checklist contained sixty-six characteristics. Working under Torrance's direction, Paguio questioned the number of underlying factors in the checklist. He used factor analysis and found that sixty-two of the characteristics clustered into four different factors. Each of the sixty-two characteristics showed factor loadings above .30 for the identified factor. Using the factor loadings, Paguio constructed the revised version of the ICC which eliminated the four characteristics with factor loadings below .30 on the identified factors.

By clustering the sixty-two characteristics into four factors, the personality traits underlying the ICC were more easily identified. Thirty-two characteristics comprised Factor I which appeared to describe traits associated with achievement. Twelve characteristics were associated with Factor II which tended to reflect sociability. Factor III was composed of nine characteristics which tended to reflect negativistic and critical traits. Nine characteristics grouped for Factor IV appeared to reflect creative and intuitive traits.

The researcher selected the revised ICC for this study. In addition to evaluating the principals' responses to the sixty-two characteristics, the factor evaluation of their

responses will provide insights into underlying traits that are encouraged or discouraged.

Data Collection Procedures

A mail survey was used as the procedure for collecting information from sample participants. All questionnaires were mailed to principals of each of the 260 schools in the sample. A cover letter, explaining the purpose of the study and the importance of each person's response, was included in the mailing (see Appendix A). A stamped, addressed return envelope was included also. A two week deadline for the return of the questionnaires was stated. If a copy of the study abstract was desired, the principal was to indicate so on the returned questionnaire. The instructions on the questionnaires directed the participants to respond to each of the sixty-two characteristics. Response options ranged from encourage very strongly (1) to discourage very strongly (6).

Careful records were kept of the data collection process. As questionnaires were returned, the date was recorded and comments were noted. Nonrespondent information was maintained also. Two weeks after the initial mailing, another questionnaire and follow-up letter were sent to those who had not responded to the first survey.

The records maintained as questionnaires arrived from the first mailing indicated that 128 surveys had been returned. Therefore, 132 questionnaires were sent in the second mailing. The second cover letter emphasized the importance of the respondent's participation in the study (see Appendix C).

Following the second mailing, thirty-eight questionnaires were received. The total response to the questionnaire was sixty-four percent.

Questions/Hypotheses and Data Analysis

All survey data were entered on the computer. Numerical values from one to four were coded for the reported independent variables of school size, experience, age, gifted education courses taken, sex, and programs offered for creative students. The principals' responses for each of the sixty-two characteristics were given numerical values from one to six. Statistical tabulations were performed using the Statistical Package for the Social Science (SPSS).

Research Question

To what extent are the sixty-two characteristics of creative students encouraged by California public school principals?

Research Hypotheses

1. There is no correlation between the principals' ratings of the characteristics for creative youth and the experts' ratings.

2. There is no difference between the means of principals in elementary and high school levels with regard to their ratings of the characteristics of creative students and the ratings by experts.

3. There is no difference between principals with varying amounts of college course work in gifted education and their ratings of the characteristics of creative students.

4. There is no difference between principals of varying school size and their ratings of the characteristics of creative students.

5. There is no difference between principals of varying age and their ratings of the characteristics of creative students.

6. There is no difference between principals of varying years of administrative experience and their ratings of the characteristics of creative students.

7. There is no difference between principals regarding gender and their ratings of the characteristics of creative students.

8. There is no difference between principals of varying school level and gender and their responses with respect to the four factors developed by Paguio:

   (1) Factor I: Confident, Aggressive, Well-adjusted;
   (2) Factor II: Socially Virtuous;
   (3) Factor III: Negativistic, Critical; and
   (4) Factor IV: Creative, Intuitive

9. There is no difference between the means of principals in elementary and high school levels who offer programs for creative students and those who do not offer programs for creative students with regard to their ratings of the characteristics of creative students.

The sources of data for these questions were the personal data section of the questionnaire and the principals' ratings of the sixty-two characteristics. To analyze the principals' responses, descriptive statistics were used to report frequency distribution by percentages and mean responses. This was computed by assigning a numerical value to each of the possible responses. An

Analysis of Variance (ANOVA) was used to investigate the data for statistical significance. The Pearson correlation coefficient and the Spearman rho correlation coefficient were used to assess both the magnitude and rankings of comparisons. For statistically significant differences found, the effect size was calculated to identify substantial differences ($\Delta \geq .50$).

Summary

A literature review was completed, and the revised ICC was selected to assess the perceptions of California school principals regarding the characteristics of creative students. The survey sampled principals in elementary and high school districts. Surveys were analyzed to determine the principals' support of the characteristics of creative students. Descriptive statistics were used to report these data. One-way analysis of variance was used to determine any differences in mean characteristics by type of school, school size, the respondent's years of experience as principal, age, the number of courses in gifted education taken by the respondent, sex, and offering of a school program for the creative, and the four factors identified by Paguio. A significance level of .05 was the established criterion. In Chapter 4, the findings of the research are presented and analyzed.

CHAPTER 4

Presentation and Analysis of Data

The data presented in this chapter are organized into three sections: Survey Results, Analysis of Survey Results, and Summary. The first section presents results of the questionnaire. The second section addresses the research question and hypotheses. Data and Findings are summarized in the third section of the chapter.

Survey Results

From an extensive review of the literature, the investigator selected E. Paul Torrance's Ideal Child Checklist as the research instrument. Two hundred and sixty surveys were mailed to principals in 215 elementary school districts and 45 high school districts.

The response from the initial mail survey was forty-nine percent; the second mailing response rate was an additional fifteen percent. The total usable response rate was sixty-four percent, or 166 returned questionnaires out of 260 (see Table 7).

TABLE 7

Survey Sample and Responses of Participating School Principals

District Type	Number Sent	Number Returned	Percent
Elementary	215	132	61%
High School	45	34	76%
Total	260	166	64%

Analysis of Survey Results

The purpose of this study was to examine the perceptions of school principals regarding characteristics of creative students. Each research question and hypothesis proposed for this study is presented and discussed in this section. For all hypotheses involving statistical analysis, a significance level of .05 was established. For items significant at the .05 level, the researcher can be ninety-five percent confident that the differences are not due to chance.

Research Question

How do the California school principals rank the sixty-two characteristics of the ICC?

Data to address the question were provided by the principals who reviewed each characteristic. Their responses ranged from "encourage very strongly" to "discourage very strongly". For each characteristic rating, a numerical value was assigned and means were calculated.

The sixty-two characteristics were arranged by the means from the item most strongly encouraged to the item most strongly discouraged. The rankings by principals and experts are illustrated in Table 8.

The top five ranking characteristics by principals included:

(1) "Asking questions about puzzling things, wants to know"

(2) "Attempting difficult tasks"

(3) "Curious, searching"

(4) "Self-starting, initiating"

(5) "Independent in thinking."

Principals reported to most strongly discourage the following five characteristics:

(1) "Negativistic, resistant"

(2) "Fearful, apprehensive"

(3) "Stubborn, obstinate"

(4) "Fault-finding, criticising

(5) "Critical of others."

TABLE 8

Ranking by Principals and Experts of Characteristics Used on the Ideal Child Checklist

Characteristics	Rankings	
	Principals	Experts
Asking questions about puzzling things, wants to know	1	11
Attempting difficult tasks	2	16
Curious, searching	3	2
Self-starting, initiating	4	10
Independent in thinking	5	3
Intuitive, insightful	6	6
Considerate of others	7	42
Sincere, earnest	8	24
Sense of humor	9	21
Courteous, polite	10	57
Healthy, physically	11	43
Self-confident	12	17
Self-sufficient	13	19
Desirous of excelling	14	36
Versatile, well-rounded	15	39
Independent in judgment	16	4
Courageous in convictions	17	1
Willing to take risks	18	5
Energetic, vigorous	19	18
Sense of beauty	20	31
Industrious, busy	21	29
Receptive to the ideas of others	22	33
Socially well-adjusted	23	56
Striving for distant goals	24	15
Persistent, persevering	25	7
Emotionally aware/sensitive	26	12
Visionary, idealistic	27	8
Altruistic, working for good of others	28	45
Doing work on time	29	55
Guessing, hypothesizing	30	14

TABLE 8 (Continued)

Rankings by Principals and Experts of Characteristics Used on the Ideal Child Checklist

Characteristics	Rankings	
	Principals	Experts
Remembering well	31	30
Self-assertive	32	28
Truthful, even when it hurts	33	25
Preferring complex tasks	34	20
Talkative, verbally fluent orally	35	44
Thorough, exhaustive	36	22
Physically strong	37	49
Determined, unflinching	38	13
Willing to accept judgments of authority	39	61
Competitive, trying to win	40	41
Adventurous, testing limits	41	9
Refined, free of coarseness	42	54
Never bored, always interested	43	23
Neat and orderly	44	53
Spirited in disagreement	45	34
Feeling/expressing emotions strongly	46	32
Popular, well-liked	47	46
Liking to work alone	48	26
Regressing occasionally, may be playful, childlike	49	27
Conforming, strictly follows rules	50	62
Obedient, submissive to authority	51	58
Quiet, not talkative	52	50
Haughty, proud	53	52
Reserved, suppressing feelings	54	47
Disturbing procedures and organization of the group	55	35
Timid, shy, bashful	56	59
Domineering, controlling	57	48
Critical of others	58	38
Fault-finding, criticising	59	40
Stubborn, obstinate	60	37
Fearful, apprehensive	61	60
Negativistic, resistant	62	51

Hypothesis 1

> There is no correlation between the principals' ratings of the characteristics for creative youth and the experts' ratings.

To test this hypothesis, the Spearman rho and the Pearson Correlation Coefficient were used. The correlation of all principals with experts was .54. The correlation for elementary principals with experts was slightly lower (.53) than the correlation (.60) with high school principals (see Table 9). The Critical Value of the Pearson Correlation Coefficient Table was used to assess the statistical significance of the correlations.[1] Since the correlation of the sixty-two paired scores was greater than .33, the Null Hypothesis that there is no correlation between the principals and the experts' ratings was rejected at the .01 level of confidence.

Focus on the top ten traits given the highest ratings by principals on the ICC indicated that the principals agreed on four traits with the experts: "Curious, searching"; "Independent in thinking"; "Intuitive, insightful"; and "Self-starting, initiating".

Differences appeared between the rankings of the experts and the principals within the lowest ten ranked by the

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[1] Donald Ary, Lucy Cheser Jacobs, and Asghar Razavieh, Introduction to Research in Education, 2nd rev. ed. (New York: Holt, Rinehart and Winston, Inc., 1979), p. 383.

experts. Three of the ten traits were reported to be very strongly encouraged by the principals. "Courteous, polite" was ranked in tenth place by the principals; the experts ranked it in the fifty-seventh place. "Socially well-adjusted" was ranked twenty-three by principals and fifty-sixth by experts. "Doing work on time" was ranked twenty-ninth by principals and fifty-fifth by experts.

TABLE 9

Correlation of Rankings on the Ideal Child Checklist Among All Principals, Elementary Principals, High School Principals, and Experts

	Principals		
	Combined (N=166)	Elementary (N=132)	High School (N=34)
Expert Rank	.54	.53	.60
Elementary Rank	.99	1.00	.98
High School Rank	.99	.98	1.00

Hypothesis 2

> There is no difference between the means of principals in elementary and high school levels with regard to their ratings of the characteristics of creative students.

Although the principals from the elementary and high school levels varied significantly on six characteristics,

their overall responses were remarkably similar. The Pearson Correlation Coefficient for elementary and high school ratings was .98.

Using Analysis of Variance (ANOVA), the investigator reviewed the means for high school and elementary responses for each of the sixty-two characteristics. The characteristic, "Considerate of others", received significantly different responses from elementary and high school principals. Elementary principals more strongly encouraged the trait than high school principals did. The mean effect was figured by dividing the difference between the means by the standard deviation. This further analysis indicated a mean effect of $\Delta = .50$, which is considered substantial.

The second trait that received significantly different responses from elementary and high school principals was "Courteous, polite". This time, the high school principals more strongly encouraged the characteristic than the elementary principals did. With the mean effect of $\Delta = .50$, the magnitude of this difference may be considered substantial.

The third characteristic reflecting significant difference was "Critical of others". When the mean effect was figured, however, it was not found to be a substantial difference ($\Delta = .40$).

The next characteristic that received significantly different ratings between the high school and elementary respondents was "Domineering, controlling". Elementary principals indicated that the characteristics should be less strongly encouraged than the high school principals reported.

"Fault-finding, objecting, criticising" was another characteristic receiving significantly different responses from elementary and high school principals. Elementary principals more strongly discouraged the characteristic than the high school principals did. When the mean effect was determined, however, it was not found to be a substantial difference (Δ=.40).

The last characteristic with statistically significant differences was "Reserved, suppressing feelings". Again, elementary principals more strongly discouraged the characteristic than the high school principals did. The response was found to be a substantial difference. The findings are summarized in Table 10.

For fifty-six of the characteristics, the Null Hypothesis was retained. For the six items discussed, however, the Null Hypothesis was rejected.

TABLE 10

ANOVA of Creative Student Characteristic Ratings by Elementary and High School Principals

Characteristic	School Level Mean			
	High School	Elementary	F	p
#6 Considerate of others	1.83	1.47	6.19	.01
#8 Courteous, polite	1.89	1.52	7.00	.01
#10 Critical of others	4.31	4.76	4.88	.03
#16 Domineering, controlling	4.14	4.63	5.93	.02
#20 Fault-finding, objecting, criticising	4.43	4.90	4.90	.03
#43 Reserved, suppressing feelings	3.85	4.38	6.15	.01

Hypothesis 3

> There is no difference between principals with varying amounts of college course work in gifted education and their ratings of the characteristics of creative students.

The one-way Analysis of Variance (ANOVA) was used to test for statistically significant differences between responses of principals classified into three groups according to their level of formal training in gifted education. The three groups included: (1) principals with no course work in gifted education, (2) principals with one to nine hours in gifted education, and (3) principals with ten or more hours in gifted education.

A statistically significant difference only appeared for one item, "Liking to work alone". The difference was observed between the group with ten or more hours of course work in gifted education and the other two groups. The group with ten or more hours more strongly encouraged the characteristic than the other two groups reported. Thus, Null Hypothesis 3 was retained except for the characteristic, "Liking to work alone", for which it was rejected at the .95 level of confidence.

Hypothesis 4

> There is no difference between principals of varying school size and their ratings of the characteristics of creative students.

One-way Analysis of Variance was used for comparing responses of principals according to school average daily attendance (ADA). The four groups included: (1) principals whose schools were under 100 ADA, (2) principals whose schools were 100-500 ADA, (3) principals whose schools were 501-1000 ADA, and (4) principals whose schools were over 1000 ADA. Statistically significant differences occurred for only two characteristics: "Liking to work alone" and "Striving for distant goals".

The statistically significant difference for "Liking to work alone" appeared in the principal responses from the third and fourth groups. The third group more strongly discouraged the characteristic. The researcher found the mean effect to be a substantial difference ($\Delta = .73$).

With a mean response of 1.45, principals whose schools were over 1000 ADA most strongly encouraged the second characteristic, "Striving for distant goals". The mean of the response from principals in each of the other groups reflected a steady decrease in encouragement of the characteristic. Substantial differences were noted between the reported means for principals of schools under 100 ADA

and principals of schools over 500 ADA, principals of schools under 100 ADA and principals of schools over 1000 ADA, and principals of schools from 100 to 500 ADA and principals of schools over 1000 ADA.

The Null Hypothesis was retained for sixty of the characteristics. In only two characteristics were statistically significant differences identified.

Hypothesis 5

There is no difference between principals of varying age and their ratings of the characteristics of creative students.

Principals were categorized into four age brackets: (1) 25-35 years, (2) 36-45 years, (3) 46-55 years, and (4) over 55 years. Statistically significant differences appeared for three characteristics, "Competitive, trying to win", "Talkative, verbally fluent orally", and "Willing to accept judgments of authority".

The mean for the responses of principals in the twenty-five to thirty-five years of age bracket indicated that principals in that group more strongly discouraged the trait, "Competitive, trying to win", than principals in the other three groups did. In order to determine whether any substantial differences existed, the means were further analyzed to assess the effect size. A substantial difference was detected in each comparison of means between the principals in the youngest age group and each of the other groups.

Statistically significant differences were found also in the principals' responses to the trait, "Talkative, verbally fluent". The group of principals in the youngest age bracket more strongly encouraged the characteristics than principals in any of the other groups did. Substantial

differences were identified between the principals in age brackets one, three, and four and two and four.

When a one-way Analysis of Variance (ANOVA) was used to determine whether significant differences existed for the third characteristic, "Willing to accept judgment of authority", there was a substantial difference between the means of the twenty-five to thirty-five age bracket of principals and the two groups of principals over forty-six. In each case, the youngest group more strongly encouraged the trait than the other three groups did.

Reviewing the Analysis of Variance for the sixty-two characteristics, the Null Hypothesis was retained except with the three traits for which it was rejected.

TABLE 11
ANOVA of Creative Student Characteristic Ratings Reported by Principals of Varying Age Groups

Characteristics	Means for Age Grouping in Years				F	p
	25-35	36-45	46-55	over 55		
Competitive, trying to win	3.38	2.72	2.42	2.00	5.22	.01
Talkative, verbally fluent	1.88	2.10	2.37	2.80	4.12	.01
Willing to accept judgments of authority	1.63	2.70	2.36	2.56	4.30	.01

Hypothesis 6

> There is no difference between principals of varying years of administrative experience and their ratings of the characteristics of creative students.

The classifications for the independent variable included: (1) under two years of experience, (2) two to five years of experience, (3) six to ten years of experience, and (4) over ten years of experience. Using the one-way Analysis of Variance (ANOVA), the investigator found only two characteristics that received ratings at the statistically significant level of .05 or lower. These included: "Conforming, strictly following rules", and "Timid, shy, bashful".

The fourth group with over ten years of experience reported to most strongly encourage the characteristic, "Conforming, strictly following rules", and the group with six to ten years most strongly discouraged the characteristic. Substantial differences were identified between groups two and three and groups three and four.

The Null Hypothesis was retained for sixty of the sixty-two characteristics, the exception being the two characteristics discussed.

Hypothesis 7

> There is no difference between principals regarding gender and their ratings of the characteristics of creative students.

When the means for male and female principals were compared using Analysis of Variance, twenty-three of the sixty-two characteristics reflected statistically significant differences (see Table 12). For eighteen of the characteristics, female principals reported that they more strongly encouraged that trait than the male principals reported. The eighteen characteristics included:

(1) "Considerate of others"

(2) "Courageous in convictions"

(3) "Emotionally sensitive"

(4) "Energetic, vigorous"

(5) "Fault-finding, objecting, criticising"

(6) "Healthy, physically"

(7) "Intuitive, insightful"

(8) "Regressing, occasionally, may be playful, childlike

(9) "Self-confident"

(10) "Self-starting, initiating"

(11) "Self-sufficient"

(12) "Sense of beauty"

(13) "Sense of humor"

(14) "Socially well-adjusted"

(15) "Willing to take risks"

(16) "Attempting difficult tasks"

(17) "Sincere, earnest"

(18) "Versatile, well-rounded".

Of the eighteen, four were in the top ten rankings of the experts. Those included: "Courageous in convictions", "Intuitive, insightful", "Self-starting", and "Willing to take risks".

In five characteristics, female principals gave a higher rating than male principals did. These included: "Adventurous, testing limits", "Critical of others", "Domineering, controlling", "Negativistic, resistant", and "Reserved, suppressing feelings". Of the six, "Adventurous testing limits" was in the top ten rankings of experts.

With twenty-three of the items, the Null Hypothesis was rejected. For the remaining thirty-nine items on the checklist, the Null Hypothesis was retained.

TABLE 12

ANOVA of Creative Student Characteristic Ratings Reported by Male and Female School Principals

Characteristic	Means		F	p
	Male	Female		
Adventurous, testing limits	2.29	2.82	9.18	<.01
Attempting difficult tasks	1.43	1.18	6.87	<.01
Considerate of others	1.65	1.35	5.47	.02
Courageous in convictions	1.75	1.49	4.33	<.04
Critical of others	4.49	5.00	8.59	<.01
Domineering, controlling	4.38	4.78	5.14	.02
Emotionally aware/sensitive	2.05	1.64	10.38	<.01
Energetic, vigorous	1.78	1.45	6.78	.01
Fault-finding, objecting, criticising	1.12	1.08	9.47	<.01
Healthy, physically	1.75	1.35	8.18	<.01
Intuitive, insightful	1.61	1.33	6.08	.01
Negativistic, resistant	5.05	5.42	6.10	.01
Regressing occasionally, may be playful, childlike	3.18	2.76	6.62	.01
Reserved, suppressing feelings	4.05	4.63	9.56	<.01
Self-confident	1.70	1.42	5.14	.02
Self-starting, initiating	1.50	1.25	5.14	.02
Self-sufficient	1.74	1.47	5.47	.02
Sense of beauty	1.95	1.51	11.07	<.01
Sense of humor	1.73	1.33	10.74	<.01
Sincere, earnest	1.63	1.36	10.71	.01
Socially well-adjusted	2.02	1.56	10.71	<.01
Versatile, well-rounded	1.83	1.33	17.83	<.001
Willing to take risks	1.79	1.47	6.79	.01

Hypothesis 8

There is no difference between principals of varying school level and gender and their responses with respect to the four factors developed by Paguio:

Factor I: Confident, Aggressive, Well-adjusted;

Factor II: Socially Virtuous;

Factor III: Negativistic, Critical; and

Factor IV: Creative, Intuitive

No statistically significant two-way interactions were identified for any of the four factors. Therefore, the Null Hypothesis was retained.

Statistically significant differences for gender, however, appeared for Factor I and Factor III. With Factor II, the analysis indicated a statistically significant difference for school level. Table 13 summarizes the findings.

TABLE 13

ANOVA of Factors by Gender and School Level

Factors	Source	DF	MS	F	p
Factor I,					
Confident, Aggressive, Well Adjusted	Gender (G)	1	566.37	12.80	.001
	School Level(s)	1	2.94	.66	.797
	GxS	1	6.01		.713
Factor II,					
Socially Virtuous	Gender (G)	1	16.47	1.95	.166
	School Level(s)	1	45.28	5.34	.023
	GxS	1	.59	.69	.793
Factor III,					
Negativistic, Critical	Gender (G)	1	117.01	11.58	.001
	School Level(s)	1	26.90	2.66	.105
	GxS	1	.02	.22	.963
Factor IV,					
Creative, Intuitive	Gender (G)	1	4.88	2.16	.144
	School Level(s)	1	2.78	1.23	.269
	GxS	1	.10	.42	.838

Hypothesis 9

> There is no difference between the means of principals in elementary and high school levels who offer programs for creative students and those who do not offer programs with regard to their ratings of creative students.

To test this hypothesis, a one-way Analysis of Variance (ANOVA) was used to determine significant differences between principals whose schools offer programs for identified creative students and principals whose schools do not offer such programs. The only statistically significant difference was found for one characteristic, "Critical of others". Upon further analysis, however, the investigator did not find the difference to be substantial or of practical importance.

Summary

The data indicated a positive correlation between experts and principals on the degree to which each of the sixty-two characteristics should be encouraged or discouraged for the creative personality. Focusing on the top ten characteristics selected by experts, principals concurred with forty percent of the traits. Those characteristics included "Curious, searching", "Self-starting, initiating", Independent in thinking", and "Intuitive, insightful".

That agreement is weakened in that of the ten characteristics ranked by experts as the least reflective of the creative personality, principals ranked forty percent strongly. Those characteristics included "Courteous, polite", "Socially well-adjusted", "Doing work on time", and "Willing to accept judgment of authority."

In contrasting levels of demographic factors with relation to the characteristics, the greatest number of differences occurred when principals' responses were grouped by gender. Therefore, Hypothesis 7 was rejected for twenty-three of the sixty-two characteristics.

When the other independent variables of school level, college course work, school size, age, years of administrative experience, and principals whose schools did or did not offer programs for creative students were reviewed, the few characteristics which reflected a statistically significant difference were discussed. The data, however, did support the retention of the hypotheses dealing with those variables for most of the sixty-two characteristics on the checklist.

In Chapter 5, a summary statement, findings and conclusion, and recommendations for future study are presented.

CHAPTER 5

Summary, Findings, Conclusions, and Recommendations

A brief summary of the study is presented in this chapter. Findings are discussed, conclusions are drawn, and recommendations for future studies about creative students are included.

Summary

The education of students in California's public schools is greatly influenced by the leadership of the principals. The student characteristics that an administrator perceives to be important have implications for the management and direction of the educational program.

Furthermore, the educational environment that schools provide for students has a great impact on the students' adjustment to society. In the review of the literature, it was found that students tend to embrace characteristics that adults in the environment value.[1] Kirby found that creative

[1] Eleanor G. Hall, "Longitudinal Measures of Creativity and Achievement for Gifted IQ Groups," The Creative Child and Adult Quarterly, X, No. 1 (1985), 14.

values are sometimes sacrificed for smooth classroom management and control.[2]

Research has suggested that creativity may be inhibited or developed depending on society's values.[3] Thus, since each society tends to define creativity, an understanding of its characteristics is vital.

Numerous researchers in the twentieth century have offered definitions of creativity. These definitions tend to fall into three categories: the creative individual, the creative process, and the creative product.

Of the three categories, the creative individual appeared to be of special concern for schools. Thus, the purpose of this study was to examine the characteristics that school principals indicate should be encouraged for creative students.

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[2] Paula Marie Kirby, "A Study of the Selection and Rating of Torrance's Creativity Characteristics for the Ideal Teacher and the Ideal Student by Different Teacher Groups in Gifted Education in Pennsylvania," Diss. Pennsylvania State University, 1982, p. 78.

[3] John Curtis Gowan and Meredith Olson, "The Society Which Maximizes Creativity," in Creativity: Its Educational Implications, eds. J.C. Gowan, J. Khatena, and E.P. Torrance (Toronto: Kendall/Hunt Publishing Company, 1981), p. 317.

The instrument that was used to assess the characteristics that school principals indicate should be encouraged for creative students was E. Paul Torrance's Ideal Child Checklist. The inventory included sixty-two characteristics that experts have ranked as most reflective of creative students.

A stratified random sample of 260 school principals, representing thirty-four percent of the population, received copies of the Ideal Child Checklist. They were asked to give their opinions by rating the sixty-two characteristics from encourage very strongly to discourage very strongly. A total of sixty-four percent of the surveys were returned in usable form for providing data for the study.

An analysis of the data revealed some agreement between experts and principals on which of the sixty-two characteristics should be strongly encouraged for the creative student. For the independent and dependent variables, each of the significant differences at ($p \leq .05$) is discussed.

Findings and Conclusions

This study was undertaken to assess three issues:

(1) The correlation of principals' rankings of creative students' characteristics with experts' rankings in E. Paul Torrance's Ideal Child Checklist.

(2) The characteristics California public school principals report to encourage or discourage in their recognized creative students.

(3) The relationship between principals' rankings of characteristics and the availability of programs for the creative students at their schools.

E. Paul Torrance did earlier field work to assess the first issue. In 1975, he used the Ideal Child Checklist to survey fifty elementary school principals' perceptions of creative students. He found the correlation between the rankings of principals in his sample and the rankings of experts to be .42.[4]

[4] E. Paul Torrance, "Assessing Children, Teachers, and Parents Against the Ideal Child Criterion," Gifted Child Quarterly, XIX, No. 2 (1975), 136.

This study increased the sampling of principals and included both elementary and high school levels in California. The data suggested the rejection of the Null Hypothesis: "There is no correlation between the principals' ratings of the characteristics for creative youth and the experts' ratings". The correlation of principals' rankings with the experts' rankings was .54.

Principals' knowledge and understanding of the characteristics of creative students have increased since 1975. This may be due to the influx of new administrators with broader training into principal positions. Sixty-one percent of the principals surveyed reported that they had served in that capacity less than ten years.

In comparing the ratings of specific characteristics by principals and experts, however, there were still disturbing differences. Two of the characteristics that principals reported to strongly encourage were strongly discouraged by the experts. These traits included: "Willing to accept judgment of authority", and "Doing work on time". Each of those tends to place restrictions on individual freedom which philosophers dating back to Plato maintain is basic to creativity.

Principals may have conflicting priorities which hinder a higher correlation between their rankings and the rankings

of experts. Many of the characteristics that principals reported to encourage tend to promote smooth school management, such as "Courteous, polite"; "Industrious, busy"; "Socially well-adjusted"; and "Doing work on time".

Researchers in creativity would strongly question an emphasis on those characteristics. Amabile maintained that since the creative process was an uncharted adventure, it could not be restricted by the expectation of "Doing work on time". Both Nietzsche and Whiteside associated creativity with a social imbalance and perhaps would question the emphasis on the trait, "Socially well-adjusted".

Those traits, however, do help to foster a cooperative school environment. Kirby observed that when smooth school management conflicted with creative traits of students, the creative traits may not be reinforced.[5]

Although the positive correlation between the rankings of creative students by principals and experts has increased, a greater consensus may be desired. Perhaps further training for principals in the characteristics of the creative student may reduce the gap between the perceptions of principals and experts.

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[5] Kirby, op. cit., 78.

To assess the second issue, various independent variables were studied to identify similarities and differences in the ratings of creative student characteristics reported by the principals. In comparing responses from elementary and high school principals, there appeared to be remarkable congruence. The principals ranked only six characteristics with a statistically significant difference at the elementary and high school levels. None of the six characteristics, however, were ranked highly by the experts. Those few differences between the elementary and high school principals and their rankings may be due to an inadequate understanding of creative students or a conscious choice to emphasize traits most conducive to a smoothly operating school

Another independent variable considered in this study was the principal's amount of course work in gifted education. Although a statistically significant difference was found for one characteristic, "Liking to work alone", the mass of the data did not indicate that course work in gifted education did affect the principals' ratings of the characteristics. That conclusion, however, overlooked several mitigating factors. The content and quality of the reported courses in gifted education was unknown. The creative student may not have even been included in the curriculum.

Also, the review of the literature weakens that conclusion. Noland found that college-level training in gifted education, as measured by pretests and posttests, significantly increased the students' understanding of the creative individual.[6] Murphy also found that teacher attitudes toward creative students were influenced by training in gifted education.[7]

The impact of school size was another variable assessed in the study. Responses indicated no significant differences for sixty of the sixty-two characteristics. Of the two characteristics where differences were detected, "Liking to work alone" had little impact on the creative student according to experts.

The second characteristic, "Striving for distant goals", however, was ranked sixteenth by experts. Administrators with enrollment of 500 or less did not encourage that quality as much as principals from larger schools did.

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[6] Ronald G. Noland, Dewey W. English, and John F. Von Eschenbach, "Perceptions of Gifted Students and Their Education," Roeper Review, 7 (1984), 34.

[7] Douglas Murphy, Reva Jenkins-Friedman, and Nona Tollefson, "A New Criterion for the 'Ideal' Child?," Gifted Child Quarterly, 19, No. 1 (winter 1984), 35.

Four age brackets were used to assess the variable of age for encouraging or discouraging creative characteristics. Since only two characteristics were ranked with a statistically significant difference by the various age groups, the data suggested that age was not a significant variable.

The survey results tended to suggest an optimum number of years of experience. Principals with six to ten years of experience put the least emphasis on "Conforming and strictly following rules", which experts contended discourages creativity. Yet administrators with over ten years experience encouraged that characteristic strongly. Perhaps administrators with six or more years of experience have the confidence to allow greater individuality in the student body.

However, since only two characteristics showed any statistically significant difference at all, it appeared that experience was not a crucial element. Principals may have experience, but no exposure to creative students which would tend to explain the lack of influence experience appears to have from these data.

Researchers have cited a dearth of study on the relationship between creative thinking and gender.[8] This study found the independent variable, gender, to have a significant influence on the characteristics principals encourage or discourage.

Some researchers have suggested that age rather than sex influences attitude. Paguio suggested that adults from the age group exposed to the various educational media in promoting equal opportunity for males and females during the 1960s and 1970s have fewer attitudinal differences due to gender.[9] Yet as Table 14 indicates, age groups were very similar between male and female at each of the levels and little difference was found between the age groups composed of both male and female respondents.

TABLE 14
Distribution of Male and Female Respondents Throughout the Age Brackets Surveyed

Sex	Age Brackets			
	25-35	36-45	46-55	over 55
Female	9%	39%	41%	11%
Male	1%	39%	42%	18%

[8] Peter Chu-Quang-Minh, "Creative Thinking in Male and Female Vietnamese, Filipino, and Anglo-American College Undergraduate Students, as Measured by the Torrance Tests of Creativity," Diss. University of the Pacific, 1980, p. 15.

[9] Ligaya Palang Paguio, "Sex Differences in Perceptions of Mothers and Fathers of the Ideal Child," Diss. University of Georgia, 1980, p. 64.

Males and females differed significantly on twenty-three characteristics. For eighteen, female principals reported that they encouraged the characteristics more strongly than male principals did. Of the eighteen, four were included in the top ten rankings of experts. Those qualities included "Courageous in conviction", "Intuitive, insightful", "Self-starting, initiating", and Willing to take risks". Of the remaining five characteristics which men ranked higher than women, one of them, "Adventurous, testing limits", was ranked in the experts' top ten.

Those male and female differences may be traced to the conflict in our society cited by Torrance in the review of the literature. Torrance found that although both sensitivity and assertiveness were associated with creativity, each quality tended to be segregated into the masculine or feminine domain with no overlap. Thus, the integrated creative personality was not encouraged completely.

Some other researchers have downplayed differences in attitudes between males and females. Using 475 middle class parents and the Ideal Child Checklist, Paguio concluded that there was no sex difference in perception of the ideal child

due to the sex of the parent.[10] He questioned if his findings would be supported in other samplings.

This study of school administrators' perceptions of the creative student does not support Paguio's findings. Very distinctive differences were found in this study of principals and their rankings on the Ideal Child Checklist. The greatest divisions appeared between male and female principals regardless of the school level or age. Shakeshaft's research also revealed significant differences between male and female approach in education. She concluded that the very nature of schooling was shaped in the male image. She traced this nature to the fact that schools began in response to what males needed to know in order to become public people.[11] Following Paguio's findings with middle class parents who were exposed to the equal opportunity media of the 1960s and 1970s, however, it may appear that as administrators are trained in an environment emphasizing equal opportunity, sex role stereotyping may be reduced in the public schools.

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[10] Ibid., pp. 63-64.

[11] Charol Shakeshaft, "A Gender At Risk," Phi Delta Kappan, 67, No. 7 (March 1986), 500.

The difference in gender also appeared in assessing Factor I Confident, Aggressive, Well-Adjusted and Factor II Socially Virtuous. Males more strongly encouraged the characteristics comprising Factor I. Females did not report the same emphasis.

For Factor II, women reported a stronger encouragement than men did. The male/female difference was corroborated by a study of male and female teachers. Murphy found that male and female teachers with little hours of training in gifted education indicated dissimilar attitudes toward Factor II. Female teachers more highly valued traits related to conforming, passive behavior.[12]

For the third issue of this study, the data obtained did not reveal that a relationship existed between the principals' rankings of the characteristics and the availability of programs for creative students at their schools. Principals who offered special programs for creative children and principals who did not offer programs varied significantly in their responses only on one of the sixty-two characteristics. Many factors beyond a principal's control, however, may influence the offering of

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[12] Murphy, Jenkins-Friedman, and Tollefson, op. cit., 35.

special classes for the creative. The factors may include appropriate staff, funds, or developed curriculum. Furthermore, a successful program in a large school may not reflect the principal's understanding of creative students as much as the teacher's knowledge who offers the program. Also, the mere reporting of offering a program for creative students provided no indicator of the quality of the program.

In summary, the following conclusions were drawn from the survey data:

1. There is a moderate positive correlation between the rankings of principals and experts of characteristics on the Ideal Child Checklist.

   1a. Some of the characteristics reportedly encouraged by principals ("Courteous, polite", "Socially well-adjusted", "Doing work on time", "Willing to accept judgment of authority") are strongly discouraged by the experts.

   1b. Comparing a limited study of fifty elementary principals in 1975 with data from this study, it appears that the gap between the characteristics encouraged or discouraged by the experts and the principals may have decreased.

2. Few statistically significant differences between the ratings of elementary level and high school level principals were reported on the returned questionnaires.

3. School size has little relationship to the characteristics principals report to encourage or discourage.

   3a. Principals of larger schools (greater than 500 average daily attendance) did report to encourage the characteristic, "Striving for distant goals", more than principals from smaller schools did.

4. From the data reported, age had little relationship to the characteristics principals indicated they encouraged or discouraged.

5. Experience had little relationship to the characteristics principals encouraged or discouraged.

6. The gender of the principal was significantly related to the characteristics he or she reported to encourage or discourage.

6a. Sexual differences in Factor I, Confident, Aggressive, Well-adjusted were demonstrated across all age brackets.

6b. Males more strongly encouraged characteristics comprising Factor I, Confident, Aggressive, Well-adjusted.

6c. The ratings of female principals (when they were significantly different from the male principals' ratings) more closely paralleled the ratings by experts than the male principals' ratings did.

7. The data did not indicate greater conformity in responses between experts and principals who offered programs for creative students.

In general, the data indicated a discrepancy between the rankings of experts and the rankings of principals. Yet there was remarkable consistency among the principals especially on many of the traits relating to school management.

As school principals, administrators often become pragmatists. The traits to discourage for creative students such as "Willing to accept judgments of authority", appear

to be embraced by the pragmatic administrator for effective school control. Perhaps alternative learning environments are necessary for creative students, so that the important characteristics to be encouraged or discouraged for their best development do not need to be overlooked.

For the ideal principal to encourage appropriate characteristics for the creative individual, school size, age, experience and the amount of course work in gifted education appear to have little relationship as revealed in these data. Responses by gender, however, were markedly different. These data indicated that a blending of some male and female traits would be the ideal combination to encourage creativity.

More research is needed into carefully defining creative programs before a conclusion could be made as to principals' knowledge and the programs they offer.

In conclusion, it is hoped that this study has helped to assess principals' espoused attitudes toward characteristics to encourage or discourage for the creative student. This information may provide direction to best prepare principals for identifying and serving these very important individuals, since they are also potential resources for our country.

Recommendations

In view of the findings of this study, the following recommendations for further study are made.

1. Chapter 1 listed six areas of giftedness, yet this study has focused exclusively on principals' perceptions of creative students. It is recommended that further studies are needed to explore the perceptions of principals of the other five dimensions of giftedness.

2. This study has focused exclusively on characteristics principals espouse to encourage or discourage. Further study of actual school operations could assess the consistency between the principals' expressed attitudes on the survey and their daily school management.

3. Further study of the nature of course work in gifted education is necessary to assess the quality and breadth of the courses offered and the suitability of the courses for school principals.

4. A conflict between traits to encourage or discourage for creative students and smooth school operation has been identified. Study of alternative learning environments conducive to the learning of creative students is suggested.

5. Since men and women report to reinforce different characteristics of creativity, in-service programs to unite the male and female spheres of creativity may be explored.

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APPENDIX A

SURVEY COVER LETTER

March 7, 1986

Dear Colleague:

I am a coordinator for gifted and talented education and a doctoral candidate at the University of the Pacific. I am preparing a study of special interest to principals throughout California. The study is entitled "California School Principals' Perceptions of Creative Students' Characteristics".

Schools do have a tremendous impact on shaping students' lives, and this study will provide valuable data on the characteristics that principals throughout California believe should be encouraged and discouraged.

The schools selected for this study represent all regions in the State, so it is important that all of the questionnaires be returned for the accuracy and completeness of the study. Enclosed is a questionnaire and checklist of student characteristics.

Please find fifteen minutes in your schedule to complete this questionnaire and return the survey in the enclosed, stamped envelope. You may call me at the GATE office, Modesto City Schools (209) 576-4127, if you have any questions. I will appreciate your prompt response by April 11th.

You may sign or not sign the questionnaire as you wish. But if you give your name and address, that will be placed in a box for a drawing for a mini-cassette stereo player. If you would like a copy of the results, I will be happy to mail one to you.

Your cooperation and participation in this study is greatly appreciated.

Sincerely,

Jeanne Dahlin

Jeanne Dahlin
Doctoral Student
University of the Pacific

APPENDIX B

QUESTIONNAIRE

Principal's Questionnaire

School Size: ___ under 100 ADA ___100-500 ___100-500 ADA ___501-1000 ADA ___over 1000 ADA

Years of Experience as Principal: ___ under 2 years ___ 2-5 years ___ 6-10 years ___ over 10 years

Age: ___25-35 years ___36-45 years ___46-55 years ___over 55 years

Gifted Education Courses Taken: ___ none ___ one to nine hours ___ ten or more hours

Sex: ___ male ___ female

Our school provides a special curriculum to serve the needs of identified creative students: ___yes ___no

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Note: The Ideal Child Checklist was designed by E. Paul Torrance. The researcher has received permission for use.

DIRECTIONS: Given below are 62 characteristics which people encourage or discourage in gifted and talented students. We think differently about what characteristics should be encouraged or discouraged. Respond to each of the items as follows:

Encourage very strongly	1	Discourage	4
Encourage strongly	2	Discourage strongly	5
Encourage	3	Discourage very strongly	6

	Encourage Very Strongly					Discourage Very Strongly
1. Adventurous, testing limits	1	2	3	4	5	6
2. Altruistic, working for the good of others	1	2	3	4	5	6
3. Asking questions about puzzling things, wants to know	1	2	3	4	5	6
4. Attempting difficult tasks	1	2	3	4	5	6
5. Conforming, strictly follows rules	1	2	3	4	5	6
6. Considerate of others	1	2	3	4	5	6
7. Courageous in convictions	1	2	3	4	5	6
8. Courteous, polite	1	2	3	4	5	6
9. Competitive, trying to win	1	2	3	4	5	6
10. Critical of others	1	2	3	4	5	6
11. Curious, searching	1	2	3	4	5	6
12. Desirous of excelling	1	2	3	4	5	6
13. Determined, unflinching	1	2	3	4	5	6
14. Disturbing procedures and organization of the group	1	2	3	4	5	6
15. Doing work on time	1	2	3	4	5	6
16. Domineering, controlling	1	2	3	4	5	6
17. Feeling/expressing emotions strongly	1	2	3	4	5	6
18. Emotionally aware/sensitive	1	2	3	4	5	6
19. Energetic, vigorous	1	2	3	4	5	6
20. Fault-finding, objecting, criticising	1	2	3	4	5	6
21. Fearful, apprehensive	1	2	3	4	5	6
22. Guessing, hypothesizing	1	2	3	4	5	6
23. Haughty, proud	1	2	3	4	5	6
24. Healthy, physically	1	2	3	4	5	6
25. Independent in judgment	1	2	3	4	5	6
26. Independent in thinking	1	2	3	4	5	6
27. Industrious, busy	1	2	3	4	5	6

		Encourage Very Strongly					Discourage Very Strongly
28.	Intuitive, insightful	1	2	3	4	5	6
29.	Liking to work alone	1	2	3	4	5	6
30.	Neat and orderly	1	2	3	4	5	6
31.	Negativistic, resistant	1	2	3	4	5	6
32.	Never bored, always interested	1	2	3	4	5	6
33.	Obedient, submissive to authority	1	2	3	4	5	6
34.	Persistent, persevering	1	2	3	4	5	6
35.	Physically strong	1	2	3	4	5	6
36.	Popular, well-liked	1	2	3	4	5	6
37.	Preferring complex tasks	1	2	3	4	5	6
38.	Quiet, not talkative	1	2	3	4	5	6
39.	Receptive to ideas of others	1	2	3	4	5	6
40.	Refined, free of coarseness	1	2	3	4	5	6
41.	Regressing occasionally, may be playful, childlike	1	2	3	4	5	6
42.	Remembering well	1	2	3	4	5	6
43.	Reserved, suppressing feelings	1	2	3	4	5	6
44.	Self-assertive	1	2	3	4	5	6
45.	Self-confident	1	2	3	4	5	6
46.	Self-starting, initiating	1	2	3	4	5	6
47.	Self-sufficient	1	2	3	4	5	6
48.	Sense of beauty	1	2	3	4	5	6
49.	Sense of humor	1	2	3	4	5	6
50.	Sincere, earnest	1	2	3	4	5	6
51.	Socially well-adjusted	1	2	3	4	5	6
52.	Spirited in disagreement	1	2	3	4	5	6
53.	Striving for distant goals	1	2	3	4	5	6
54.	Stubborn, obstinate	1	2	3	4	5	6
55.	Talkative, verbally fluent orally	1	2	3	4	5	6
56.	Thorough, exhaustive	1	2	3	4	5	6
57.	Timid, shy, bashful	1	2	3	4	5	6
58.	Truthful, even when it hurts	1	2	3	4	5	6
59.	Versatile, well-rounded	1	2	3	4	5	6
60.	Visionary, idealistic	1	2	3	4	5	6
61.	Willing to accept judgments of authority	1	2	3	4	5	6
62.	Willing to take risks	1	2	3	4	5	6

Thank you for your assistance.

Please return this survey in the enclosed envelope to:

Jeanne Dahlin
G.A.T.E. Coordinator
Modesto City Schools
426 Locust Street
Modesto, CA 95351

o I would like a copy of the results.

Name _____

Address _____

APPENDIX C

FOLLOW-UP LETTER TO PRINCIPALS

March 25, 1986

Dear Colleague:

On March 7, 1986, I mailed a questionnaire to you for my study, "California School Principals' Perceptions of Creative Students' Characteristics". I am sending you another questionnaire, because I have not received one from you at this date.

If you have mailed the first questionnaire before receiving this letter, thank you. If you have not returned the first one, please complete the enclosed questionnaire and return it in the enclosed, stamped envelope by April 11th. Your cooperation and participation in this study is greatly appreciated.

Sincerely,

Jeanne Dahlin

Jeanne Dahlin
Doctoral Student
University of the Pacific

APPENDIX D

LETTER FROM E. PAUL TORRANCE

THE UNIVERSITY OF GEORGIA
Athens, Georgia 30602
(404) 542-4110

College of Education
325 Aderhold Hall

Department of Educational Psychology,
Research and Measurement

Dear Colleague:

I appreciate very much your interest in my work and your inquiry.

On October 1, 1984 I retired from the University of Georgia. On November 10, I had a stroke which has affected my speech, my right side, ability to judge distance, and numerous other functions. Nothing is automatic; I have to think deliberately. For this reason, I have to simplify everything, including my response to your request. I hope that it is adequate.

After you have read the brochure, reprint, paper, comment, or whatever else I have enclosed, if it is not adequate let ne know. At least you may be able to simplify the question, limit your request, or better define your question.

My doctor tells me that my functioning is not likely to improve but I will learn better ways of coping with them. I am not giving up on improving my functioning. I am taking speech therapy, working with a Feldenkreis therapist and a chiropractor, doing exercises, and using everything I learned for my research and survival and creativity. I am shifting my emphasis to coping. I hope you understand.

Good luck!

Sincerely,

E. Paul Torrance

E. Paul Torrance
Retired Alumni Foundation Distinguished Professor